



March 16, 2020

Hello EPS student (Grade 8),

Keeping your head in the game is very important - even when you are not physically in your school building. We've created English Language Arts and Math packets to provide you with opportunities to enhance the skills you've been working on the past several months.

Some of the passages and/or questions may seem easy while others may be a bit challenging. It is important to complete the lessons to the best of your ability. We included a wide variety of topics and activities to keep you engaged.

You can work at your own pace. We don't expect you to complete everything in one day. If you finish the packet, our best advice is to read for pleasure.

When school begins again, simply bring these packets to your teachers for review.

If you need anything or have questions about the school closing, your parents can call our administration building at (814) 874-6000.

Be sure to take care of yourself. Get plenty of rest, eat well, and make sure you are washing your hands with soap and water several times a day.

We will see you all after the break.

Mr. Polito, Superintendent

Mrs. Habursky, Assistant Superintendent



# Abraham

by ReadWorks



Abraham, a 12-year-old, 22,000-pound elephant, swam in the Ganges River for five hours before the giant pads of his feet finally touched land. His trainers with the Al-Sindhu All Saints Circus and Touring Exposition would have been amazed and angry at the sight, but they were miles away at the time. During his years with the circus Abraham had learned a total of seven tricks, which included walking on a rubber ball, juggling dull machetes with his trunk, and using his tusks to toss a tiny acrobat 20 feet in the air.

But Abraham refused to swim. This caused the elephant's trainers and owners no small amount of consternation. Da'ud "Sammy" Shabazz, whose great grandfather started the circus with three monkeys and a black Russian bear in 1926, had spent more than 3 million rupees to build, maintain and fill a translucent, 700,000-gallon water tank, which he transported at additional expense to every town and village along the Ganges. Abraham was gentle and a show-off, a rare combination for an elephant, which made him the perennial crowd favorite of the show. It had been Sammy's plan to capitalize on Abraham's popularity by training him to become the first elephant in any circus in India that could juggle while swimming.

The issue was Abraham's pride. Juggling machetes was fine. But there were some things Abraham refused to do for applause or salted treats, and swimming was one of them.

Shabazz did not know his animal was capable of such thoughts, so he assumed the problem was stupidity on the part of the animal, the trainer or both. The fact that his biggest, most popular and most-expensive-to-feed animal refused to go near any tank of water made Shabazz angry.

"Enough!" the Shabazz said to Pawan Mehra, his lead animal trainer, as the two men boarded the river barge that carried the circus up and down the Ganges. "If you cannot get that animal into the tank by the time we dock in Mumbai, you can go back to where I found you-performing on the street with your little monkey!"

Later that night, as the barge pattered down the river, Abraham reached his trunk through the bars of his cage searching for a clutch of hay. To his surprise, the gate opened wide. Never in his dozen years of captivity had any of his cages or pens been left unlocked. As always, Abraham was hungry, so he pushed forward, expecting to step onto the barge's wide wooden deck.

Most nights, his cage faced toward the center of the barge. But tonight the door was aimed not inward toward the boat, but outward, toward the river. When Abraham stepped outside, his right foot touched only air and then water. Abraham trumpeted loudly when he fell, but his head was already below water, muffling the sound.

By the time he rose to the surface, the barge was already floating away down the river. He paddled after it, but the red and yellow heap got smaller and smaller. Abraham stopped kicking, looked around, and saw a low rise of land far off to his left. He switched directions. Keeping his head underwater, he breathed through his trunk like a snorkel and paddled with his enormous legs.

It took five hours. His legs were tired and his lungs burned when the pad of his foot finally brushed a rock along the bottom. Soon he could walk. He hurried up the bank and over a small hill. In the yellow sunrise light he found before him a broad rice paddy with green bristles poking from the water. Abraham sunk his snout into the water and started sucking up all the rice he could eat.

He grazed for almost an hour before a man appeared on a nearby berm. The man carried a long stick like the ones Abraham's circus trainers used to discipline him. By force of habit, training and fear, the elephant froze. The man was shouting, but he didn't use any commands Abraham could recognize.

The man came closer and raised his stick to his shoulder. From the stick came a flash of light and a booming sound that scared Abraham. The elephant felt something hot hit his shoulder. The man took a few steps forward, raised the stick again, and Abraham felt another hot jolt, this time on his ribs.

Abraham's hind legs jolted to life. He ran through the paddy, away from the man and his strange powerful stick. Abraham ran and ran. He felt slow, his belly sloshing with a heavy load of rice and water. Eventually he came to a clump of trees surrounded by tall grass. Abraham fell asleep before his body even touched the ground.

It was morning again when Abraham woke. He heard the grass around him swishing, felt the ground beneath him quiver. Then he heard an elephant's trumpet. It was loud and close. He heaved himself to his feet and found himself face-to-face with a big male elephant. It stood a foot taller than Abraham.

Abraham walked backwards, taking in the sight of this tall male. He had always been the only male elephant in the circus and had never been challenged like this before. He had to look up at the wizened wild elephant's eyes, but as Abraham looked his challenger up and down, he was surprised by what he saw. The taller elephant looked ancient but, in fact, the old bull was just 10 years old. Repeated stretches of starvation had left his skin wrinkled and loose on his ribs. His left tusk was broken from so many fights for dominance.

Abraham, fed grain every day of his life and strong from all the balancing tricks, noticed all of this instinctively. His fear turned to anger, and he stopped stepping backwards. He flared his ears and stomped the ground, making his strong leg muscles ripple. Finally he raised his head and trumpeted. It was the loudest sound he had ever made in his life.

The old-looking alpha male stood his ground, but he did not charge. Instantly, Abraham knew he'd won. The wild one stomped and brayed and huffed. Eventually he looked away, and walked off toward the river. Two young females stepped toward Abraham and sniffed.

Abraham's first few months as a lower alpha male in the herd's complex leadership structure were

patchy. Whenever he saw a human, he would freeze in place. This annoyed the other elephants, who mostly ignored the humans and bumped into their big new friend every time he stopped suddenly.

But Abraham understood humans in ways the herd did not, and this became a major advantage. His understanding of humans became his biggest contribution to the herd. Abraham was able to find food in places none of the other elephants had ever thought to look. One day, a few dozen elephants tried slurping up the last stalks of rice from a paddy that had already been harvested. Some were growing testy from hunger. The dry season had been especially hot and long, and many of the grasslands the herd traditionally grazed were yellow and barren by the time they arrived.

As the others scrounged for whatever rice they could find, Abraham noticed a few huts rising along the berm. He walked to the closest hut, which smelled of grease and cooked lentils. He reared up on his hind legs and brought his front feet crashing down onto the hut's mud walls, which crumbled. Lifting the corrugated metal roof off with his trunk, he found fat woven sacks of beans, lentils and salt.

Abraham ate for a few minutes, then stepped aside to make room for some babies. One baby ate so quickly she made loud snorts. The mother elephant swung her trunk around and patted Abraham on the head.

The wet season came and then the dry. Abraham never became one of the herd's lead alpha males—he was too strange and his behavior around humans made the other elephants nervous.

Even though he was relatively short, Abraham was strong and fast, and he retained the graceful movements of a practiced dancer. The female elephants liked this, and during confrontations with humans or other herds, the different groups of males all competed to recruit Abraham to their team. Soon Abraham had a mate and baby elephants of his own.

One morning the herd was standing on the banks of the Ganges. Abraham watched his youngest offspring use his trunk to shoot his sister with water when he noticed a red and yellow barge motoring slowly upriver. There were humans on the deck of the barge and they looked at the herd, but did not point. They did not seem to recognize any of the elephants standing there.

Abraham felt the urge to stop grazing and stand motionless. He felt some fear, too, but he could not remember why. Sensing a fresh patch of grass beside him, Abraham turned his back to the barge and ate.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Who is Abraham?

- A. a trainer
- B. an elephant
- C. a rice farmer
- D. a circus ringmaster

2. How does Abraham change in the story?

- A. He was afraid of performing, then overcomes his anxiety.
- B. He was afraid to swim, then decides to go into the circus tank.
- C. He was unfamiliar with humans, but later learns their ways.
- D. He was trained as a performer, then escapes into the wild.

3. Abraham's life in captivity was very different from that of his wild peers, as he learns when he meets the wild elephant male. What evidence supports this?

- A. Abraham's fear turns to anger when he meets the wild elephant male.
- B. The wild elephant male looked ancient but was just 10 years old.
- C. Abraham was healthy and strong, while the wild elephant was starved and injured.
- D. Abraham raised his head and trumpeted whereas the wild elephant stood his ground but did not charge.

4. Based on the story, how did Abraham adjust to life in the wild?

- A. Abraham adjusted to life in the wild very easily.
- B. Abraham found it very difficult to adjust to life in the wild.
- C. Abraham was unable to adjust to life in the wild.
- D. Abraham adjusted to life in the wild with some difficulty.

5. What is this passage mainly about?

- A. The life of an Indian villager.
- B. The story of an escaped elephant.
- C. The life of an Indian animal trainer.
- D. The history of the Al-Sindhu All Saints Circus.

6. Read the following paragraph, written from Abraham's point of view.

"The man came closer and raised his **stick** to his shoulder. From the **stick** came a flash of light and a booming sound that scared Abraham. The elephant felt something hot hit his shoulder. The man took a few steps forward, raised the **stick** again, and Abraham felt another hot jolt, this time on his ribs."

Based on the description above, what kind of "stick" was the man really holding?

- A. a club
- B. a sword
- C. a spear
- D. a gun

7. Choose the answer that best completes the sentences below.

Abraham never became one of the herd's lead alpha males—he was too strange and his behavior around humans made the other elephants nervous. \_\_\_\_\_, the different groups of males all competed to recruit Abraham to their team because he understood humans.

- A. Consequently
- B. However
- C. In summary
- D. Moreover

8. The wild elephant herd eventually came to accept Abraham as one of their own. What evidence from the text supports this conclusion?

9. Describe how Abraham's experience as a circus elephant helped him to survive in the wild.

10. How do you think Abraham feels about his new life with the wild elephants at the end of the story? Use evidence from the text to support your answer.

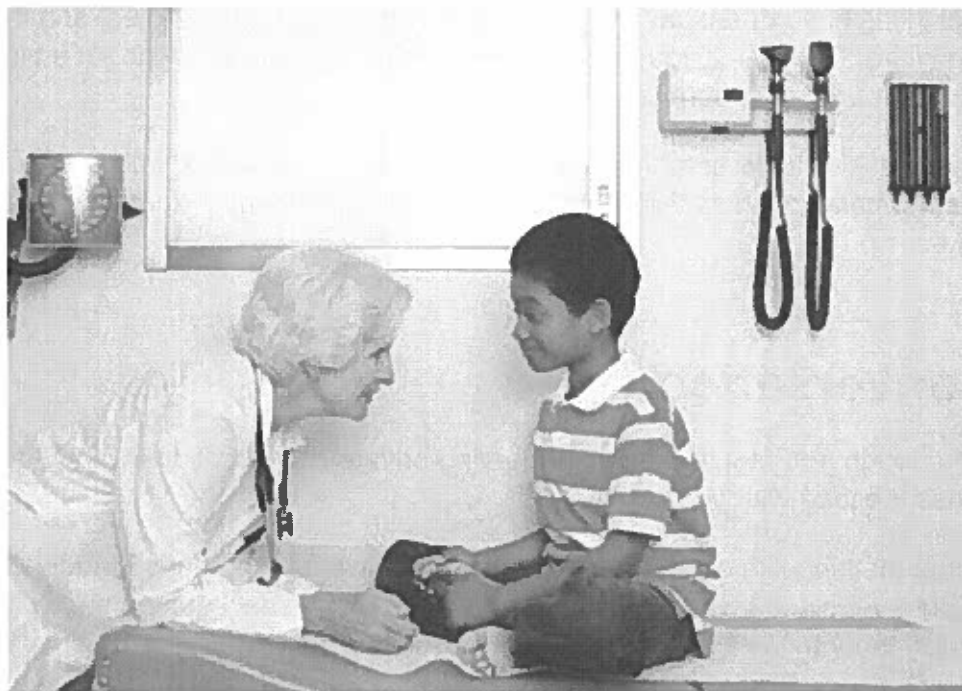




# The Doctor Will See You Now

by Lynn Brunelle

## You and your doc are partners on your health-care team!



Jupiter Images/Thinkstock/Alamy

Seeing the doctor for a checkup is probably something you've been doing regularly since you were born. When you were younger, you probably relied on your mom or dad to give the doctor information, ask questions, and remember the advice. Now that you're getting older, things are starting to change. The focus is shifting from your parents to you as you start to take more responsibility and learn to manage your own health.

Now is the time to take a greater part in making your relationship with your doctor work for you. Whether you're seeing the same doctor you've known for years or making a first appointment with a new doctor, here are some tips to help you make the most of your next visit.

## It /s All About You!

"After the height, weight, temperature, and blood pressure information is gathered, the first thing I ask my patients is 'What do *you* want to talk about?'" says Dr. Joseph Hagan. He is a primary-care

pediatrician in Burlington, Vt. "I want to talk about them. What are they eating? How are they exercising? How are they doing in school? What do they like to do with their friends, and how do they see themselves? Do they think they're too skinny, too fat, or just right? I like to get stuff right on the table so we can talk about it."

Amanda W., 13, of Washington, says she was a little concerned before her most recent exam. "I was worried about my eyesight. I didn't want to say anything, but I did talk to the doctor. I got tested, and I was fine. It was a huge relief!"

"Doctors aren't here to judge a patient," says Dr. Maureen Koval, a family practitioner in Bainbridge Island, Wash. "Most kids have questions about what's going on with their bodies, and many of them are afraid of being weird. Let me tell you, *nothing* is too weird. Doctors know about stuff, and, chances are, you are not going to surprise them."

You can think of your doctor as your teammate. The doctor is there to work with you to help you stay healthy. Koval lets her patients know that she is available. "I want them to know they can tell me anything," she says.

## Private Conversations

When you get old enough and feel ready to start having private conversations with your doctor, you may want to discuss the idea with your parents.

"If I have a cold or something like an injury, my mom comes in with me," says Maddie G., 13, of Massachusetts. "But ever since I was 12, I've been going in to my checkups on my own. My mom can come in if I need her, though."

Even if you don't mind your mom or dad staying with you the whole time, don't be surprised if the doctor asks to speak with you alone. "I think that when a patient is about 12 or 13 and they're interested in being more independent, I like to spend at least part of the visit with the patient on their own so we can talk openly about any questions he or she might have," says Koval. "This isn't about hiding things from Mom and Dad. It's about building trust and to let them know they can ask anything."

## Good Advice

Get the most out of your visit. Before your appointment, make a list of all the things you'd like to talk about. Is anything worrying you? What are your concerns? What kind of information do you want to come away with? Do you have health forms that need to be filled out for camp, a job, a sports team, or school?

Then, take notes about the doctor's observations and suggestions.

"After my last checkup, my doctor told me ways to prevent getting sick," says Dashiell M., 12, of California. "Now I wash my hands, sneeze into a tissue or my elbow, eat my veggies, and try to get

enough exercise and sleep. I didn't really think about that before, but it's good advice."

## What Can I Expect?



Rana Faure/Getty Images

In the first part of the visit, you may have your blood pressure, pulse, temperature, height, and weight measured. That information is included in your chart and can give the doctor a snapshot of your overall health. Changes in those readings can also indicate something that might need further attention.

The doctor will also want to talk with you and answer any questions you might have. You may need vision or hearing tests. You may need to have blood or urine taken for testing. And you may need to have shots in order to be up to date on your immunizations.

### Bring It!

**Here's a checklist of things to bring when you go to the doctor.**

- a list of any medications you are taking
- a list of questions you have for the doctor
- any forms that need a doctor's signature
- a pad of paper and a pen to write down what the doc says

## Who's Who in the Office



Karin Lau/Shutterstock

**From the moment you walk into the doctor's office, there is a cast of professionals ready to make your visit successful. But who are they? And what do they all do, exactly?**

**Receptionists** are the first people you meet. They are in charge of scheduling and keeping track of appointments.

**Medical assistants** take you from the waiting room to the exam room. They measure your height, weight, blood pressure, pulse, and temperature. Sometimes they give vision and hearing tests, and they may ask what your visit is about.

**Registered nurses (R.N.'s)** have more medical training than medical assistants and can give advice over the phone. They can decide whether you need to see a doctor in an emergency. They can also do medical procedures such as making splints and casts and removing stitches.

**Nurse practitioners (N.P.'s)** or **advanced registered nurse practitioners (A.R.N.P.'s)** are registered nurses who have extra education and training in certain areas of medicine.

**Physician's assistants (P.A.'s)** are health-care professionals licensed to practice medicine while supervised by a medical doctor. They can do physical exams, diagnose and treat illnesses, order and interpret tests, work with people on preventive health care, and help with surgery. In almost all states, they can write prescriptions too.

**Medical doctors (M.D.'s)** ask questions, perform exams, give advice, and prescribe medications. Who's right for you? Here are some of doctors' *specialties*, or focuses:

**Pediatricians** treat kids until the kids turn 18.

**Family practitioners** treat patients ranging from infancy to old age. If you stay under the care of one throughout your life, he or she will really know you and your medical history.

**Adolescent medicine specialists** focus on the teen years and puberty and the unique health issues that come with that territory, such as eating disorders or depression.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. According to the text, what is something you probably have been doing regularly since you were born?

- A. relying on your mom or dad
- B. seeing the doctor for a checkup
- C. learning to manage your own health
- D. taking more responsibility

2. The author divides the text in sections with subheadings. What does the author describe in the section with the subheading "What Can I Expect?"

- A. how to start having private conversations with your doctor
- B. a list of things to bring when you go to the doctor
- C. who each person in the doctor's office is and what he or she does
- D. what might happen during a visit to the doctor's office

3. Read these sentences from the text.

"

Here's a checklist of things to bring when you go to the doctor.

- a list of any medications you are taking
- a list of questions you have for the doctor
- any forms that need a doctor's signature
- a pad of paper and a pen to write down what the doc says"

What can you conclude about preparing for a visit to the doctor's office?

- A. It always involves bringing forms for the doctor to sign.
- B. It is something you should discuss with your parents.
- C. It can help you make the most of your visit.
- D. It will surprise your doctor.

4. Why might speaking privately with your doctor be important?

- A. to hide things from your mom and dad
- B. to build trust with your doctor
- C. to scare you into telling your doctor everything
- D. to rely on your parents to manage your health

5. What is the main idea of this text?

- A. There are different ways to make the most of your visits to the doctor's office.
- B. Having private conversations with your doctor is very important.
- C. There are important items to bring every time you visit the doctor's office.
- D. Each person in the doctor's office has an important job.

6. Read this sentence from the text.

"You and your doc are partners on your health-care team!"

Why might the author have begun the text with this headline?

- A. to highlight differences among different people on your health-care team
- B. to introduce an argument that the author does not support
- C. to signal that a key topic in the text will be you and your doctor working together
- D. to signal that a key topic in the text will not be you and your doctor working together

7. Choose the answer that best completes the sentence.

A doctor can tell you about ways to prevent getting sick, \_\_\_\_\_ washing your hands, sneezing into a tissue or your elbow, eating your veggies, and trying to get enough exercise and sleep.

- A. including
- B. currently
- C. instead
- D. however

**8.** In the first part of the visit, you may have your height, weight, temperature, and blood pressure measured. According to Dr. Joseph Hagan, what happens after this information is gathered?

Support your answer with evidence from the text.

**9.** According to Dr. Koval, why might a doctor ask to speak to you alone?

Support your answer with evidence from the text.

**10.** Why might it be important to build a trusting relationship with your doctor?

Support your answer with evidence from the text.





# A Crooked Election

by Kyria Abrahams



Kelly is running for class president of Wright High School. Some of Kelly's classmates think elections are pointless. Kelly's best friend Maya doesn't believe in voting at all.

"I'm not voting," Maya tells her. "Voting is pointless."

"But if you don't vote, someone else will. And then they'll get what they want and you won't get what you want!" Kelly says.

"I don't want anything. I just want to be left alone." Maya responds.

Kelly is running for class president because she says she thinks the school can be better. She wants to see less meat served in the cafeteria and more vegetarian options. She also wants the school to stop bringing a live goat onto the field during football games.

"Kelly has good ideas, but won't be able to change anything," Maya tells her classmates. "She's just idealistic. No one can change anything."

Kelly's opponent, Roger, is running for class president of Wright High School because his brother was president last year. In fact, Roger has three brothers, and all three of them have been class president.

"I'm not losing to anybody," Roger tells his brothers. "Especially not a *girl*."

Roger has really nice banners professionally printed and hangs them around the school. Roger's banners say: "Roger Whitaker. The Right Man for the Wright Job." The phrase "right man" is a reference to the fact that Kelly is a girl. Roger says that girls can't be president because they cry too much. He only says this secretly to his brothers. He would never admit this opinion to his classmates.

"All Kelly cares about is that we have tofu in the cafeteria," Roger tells his classmates. "But I want to fix the broken doors in the bathroom!" Roger holds up a screwdriver as he says this and makes a grunting "man" sound.

The election banners were given to him as a gift by the Harrison kids. Their dad owns Harrison Sign Manufacturers and made the signs for free.

"Just make sure that when you get elected-and we are confident that you will-you tell the school that they need new signs." They shake hands and give him the free signs, which suddenly don't seem so free.

Roger looks around the school and sees that they do, in fact, need new signs. The exit sign above the main door is cracked. The sign above the library just says "Librar." The menu next to the school cafeteria is so old it says you could get a peanut butter and jelly sandwich for 50 cents.

So, maybe it is a bit unfair to take something from a student who's going to vote for you. But Roger figures they have a good point about the signs.

Meanwhile, Kelly has been running around the school putting up signs of her own. They are all handmade from construction paper with fresh flowers on them. They say, "Make the school beautiful. Vote Healthy for Kelly."

Maya tells Kelly they look nice, but she doesn't think they'll do anything.

"It's just lipstick on a pig," she says. "Just because you make it look nice doesn't mean it's not still a pig."

Kelly's handmade signs make Roger nervous, because they seem more honest and down-to-earth. Although his signs are really nice and professional, it's also obvious that they cost money. Roger feels like the students don't relate to him.

He wants the other students to think he's just like them, so he organizes a barbecue during school lunch hours with free hot dogs. Actually, it's the Harrison brothers' idea. They even get him a deal on the hot dogs, from their cousin's supermarket, of course.

A few kids come by, but Roger also notices that a good amount of students stay in the cafeteria, eating food they brought from home. He can't figure out why someone would want to eat a stale sandwich when he's offering free hot dogs.

The hot dog giveaway is definitely a flop. Roger goes home dejected and sad.

The next day, the school holds a debate between the two candidates. The debate is moderated by their civics teacher, Mrs. Graham.

Roger and Kelly sit on stage, opposite each other. The auditorium is filled with students, all of whom will have the opportunity to vote. All the students are watching with great interest, as this is how they will make their decision. One wrong answer today and it could mean losing the presidency.

Mrs. Graham asks the first question.

"As class president, how would you see fit to spend the school's extra money?"

Kelly answers first. "Well, I certainly wouldn't be spending our money on expensive signs and hot dogs," she says.

The audience gasps. This is a low blow. It's surprising that Kelly would say something like that.

Roger looks into the audience and sees the Harrison brothers sinking down into their seats.

Kelly continues, "I would like our school to be healthier, and I know we have many students who are vegetarian. They don't have many options for lunch, and if they forget to bring lunch from home, sometimes they don't eat lunch at all!"

At this, at least 50 students stand up and applaud. Even Maya stands and applauds, although she rolls her eyes a little, too. The other students join in the cheering.

Of course, a few students start booing, just to be jerks.

"Eat more bacon!" says one, cupping his hands around his mouth so the sound will carry.

"Eat a vegetarian!" says another, laughing and throwing pieces of paper.

"Okay everyone, that's enough!" the moderator says from stage. The students who are booing the vegetarians just look like troublemakers now.

Roger looks into the audience. He finally realizes how many students are vegetarian; he has never thought to find out before.

"What about you, Roger? What will you spend money on?"

"Well, I would like to have a new sign for the cafeteria," he says. "And that could certainly include any vegetarian options that the school may end up providing."

"Oh please! Without me to push for it, the school will never change its menu," Kelly says. "Roger offers empty promises. And he thinks he is better than me because I'm a girl!"

The students start to applaud and Roger watches the Harrison brothers sneak out the back door.

When the debate is over, Roger can tell that he lost. His failure is palpable; he can feel it. Students clamor around Kelly in a group, hugging her and telling her how they can't wait for the new lunch menu.

Only a few people come up to Roger.

"I liked your nice sign," says Peggy, pushing her glasses up on her nose and squinting.

"Thanks," said Roger. "Can I count on your vote next week on election day?"

"Oh, that," Peggy says. "Well, actually, I'm voting for Kelly. I just wanted to be nice to you."

After school, the Harrison brothers are waiting outside to talk to Roger. He notices they are carrying some of Kelly's signs.

"We're going to have to withdraw our support," Boyd Harrison tells him.

"We just don't think you look like the winning candidate," Trent Harrison says. "And we really need to get behind someone who can help bring our dad more business."

"What are you talking about?" Roger says, angrily. "I was your guy! You supported me! I thought we were friends."

"Yeah, friends. Well, about that...You see, it's just that Kelly will bring in a lot more business for our dad's company," says Trent.

Boyd nods in approval. "It's nothing personal. You're a nice dude and all. But Kelly has a little more... *spirit*."

"Kelly? Oh please!" Roger is yelling now. "Her signs are all handmade! Didn't you see them? It's just hipster junk!"

"Oh, yeah, you noticed that? We went for a more 'indie' feel with these." Trent says.

"Tried to make them look handmade." Boyd interjects. "The hipsters love that. We're glad you noticed."

Kelly is coming out of the school now, and the Harrison brothers walk away from Roger without saying a word. Each brother puts an arm around Kelly.

"How's our best girl?" they ask.

Kelly smiles. "Doing just great now," she says. "Now that Roger looks like a woman-hating meat-eating loser."

"We've got this election in the bag," Boyd says. "A vegetarian bag, that is."

Trent holds up a bag of veggie burgers. "We've even been eating these at lunch, showing all those health-conscious kids that we're one of them."

"Well, you sure do look trustworthy now, don't you?" Kelly says, laughing. "But do you have any real food? I'm so sick of this vegetarian junk. My stomach is killing me!"

"You bet we do," says Boyd. "In fact, we have a whole bunch of hot dogs left over from Roger's barbeque yesterday. Let's go to our house and have dinner."

"By the way," Kelly says, "How did you convince people not to go get delicious free hot dogs? I think he could have really turned people to his side with that."

"It was easy," Boyd says. "We started a rumor that Roger left the hot dogs out in his car overnight. Nobody wanted to get sick. He was so depressed; he just left everything sitting there. We grabbed all the leftovers and took them back home."

"That's brilliant," Kelly says. "I can't thank you enough!"

"Well, you won't have to thank us once you're elected. Just make sure the school uses our dad's business. And, oh yeah, when the cafeteria goes vegetarian, you know which veggie burgers are the best choice."

Boyd dangles the bag in front of her and, for the first time, she reads the label: "Harrison's Burgers."

"Victory has never tasted so sweet," Kelly says.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Why does Kelly say she is running for class president?
  - A. She says the school needs new signs.
  - B. She says the school cafeteria should have more hot dogs.
  - C. She says she thinks the school can be better.
  - D. She says the football games can be more exciting.
  
2. What motivates the actions of Boyd and Trent Harrison?
  - A. They want to be elected class presidents.
  - B. They want to bring in money for their family's businesses.
  - C. They want to prove they are better than Kelly.
  - D. They want to embarrass Roger in front of the school.
  
3. The Harrison brothers give Roger free signs for his election campaign so that their father's sign company will get money from the school. Which evidence from the passage best supports this conclusion?
  - A. "The election banners were given to him as a gift by the Harrison kids. Their dad owns Harrison Sign Manufacturers and made the signs for free."
  - B. "They shake hands and give him the free signs, which suddenly don't seem so free."
  - C. "Roger looks around the school and sees that they do, in fact, need new signs. The exit sign above the main door is cracked."
  - D. "'Just make sure that when you get elected-and we are confident that you will-you tell the school that they need new signs.'"
  
4. How can Boyd and Trent Harrison best be described?
  - A. loyal
  - B. unintelligent
  - C. opportunistic
  - D. idealistic

5. What is this passage mostly about?

- A. an election with two crooked candidates
- B. a kindhearted and honest girl who runs for class president
- C. reasons why teenagers don't believe in voting
- D. why vegetarian food is healthier than hot dogs

6. Read the following sentences: "When the debate is over, Roger can tell that he lost. His failure is **palpable**; he can feel it. Students clamor around Kelly in a group, hugging her and telling her how they can't wait for the new lunch menu."

What does "**palpable**" mean as used in the passage?

- A. unnoticeable and minor
- B. disappointing and annoying
- C. helpful and encouraging
- D. obvious and intense

7. Choose the answer that best completes the sentence below.

In her election campaign, Kelly says that she wants more vegetarian food in the cafeteria; \_\_\_\_\_, she does not actually like vegetarian food.

- A. therefore
- B. however
- C. obviously
- D. particularly

8. Who made Kelly's posters?

9. Trent and Boyd Harrison want to use the class election to make money for their family. They give Roger free signs from Harrison Sign Manufacturers so that, if Roger is elected, he will get the school to buy new signs from the Harrison business.

What is another way that the brothers use the election to make money for their family?

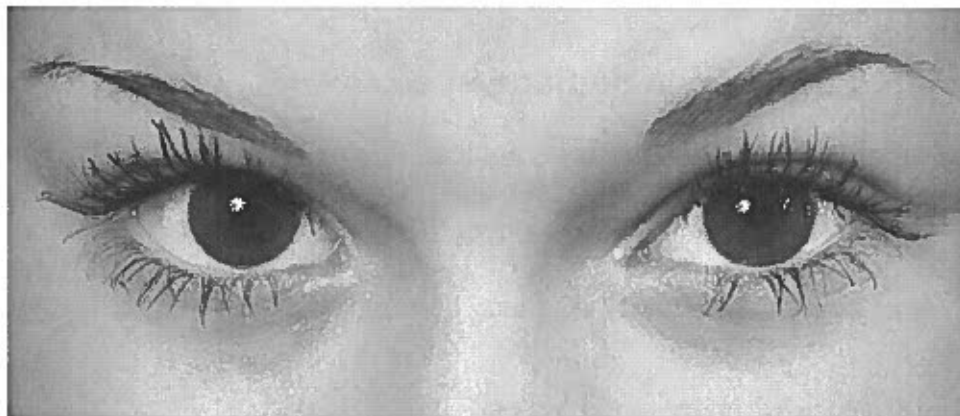
10. The word "crooked" can be used to describe something that is dishonest or corrupt. Explain why the election and the people involved in it are crooked.





# What's Your Eye-Q?

by Jessica Cohn



## Find out how much you know about healthy eyes.

Have you heard that you shouldn't cross your eyes because they can get stuck that way? In truth, that kind of thing happens only in cartoons. Yet the saying is repeated again and again.

What other eye-care "facts" are really fiction? Let's take a closer look at some common "eye-deas" about the eyes.

### **Eating carrots improves vision.**

**Fiction.** The saying, however, is based on fact. Carrots have vitamin A, which helps keep vision strong.

"You never see any rabbits wearing glasses!" jokes Dr. Stuart R. Dankner. He's a pediatric *ophthalmologist* (a doctor who treats kids' eyes) and a spokesperson for the American Academy of Ophthalmology (AAO). "Seriously, carrots contain high concentrations of carotene and vitamin A, both essential ingredients for the retina to remain healthy."

Milk and egg yolks, among other foods, have vitamin A too. The AAO says a balanced diet will give you all the vitamin A you need.

### **Don't look directly at the sun. You'll hurt your eyes.**

**Fact.** Looking at the sun too long *can* cause temporary and permanent problems. Some people can't read afterward. Others see dark patches. Most people recover fully, according to the Moorfields Eye

Hospital in London. But 10 percent of patients continue to have problems, such as no longer being able to see license plate numbers twenty-five yards away. "Sunlight is not only responsible for [light sensitivity], but it can also damage the retina. It's always advisable to wear 100 percent UVA- and UVB-protected sunglasses all year round," says Dankner.

### **Sitting too close to the TV can damage eyes.**

**Fiction.** It won't permanently damage your eyes, but it can cause some discomfort. You blink less often when watching TV, so your eyes can feel sensitive. The same thing can happen when you stare at the screen of a computer, cell phone, or MP3 player. Staring too long can even cause *double vision*, or seeing two images of one object. So look away often—at least every twenty minutes. Sitting too close to the TV—less than four feet away—also may be responsible for headaches and eyestrain.

### **Reading in dim light will ruin your eyes.**

**Fiction.** "Reading in dim light does not ruin your eyesight," says Dankner. "It can, however, cause eyestrain and headaches." Good lighting can help prevent discomfort, so why not use it? And remember: If your eyes become red and tired, skip the eye drops. They are not meant for eyestrain. Using drops can lead to more redness over time. A special kind of eye drops called artificial tears may be used with a doctor's OK.

### **Wearing glasses or contacts weakens your eyes.**

**Fiction.** Corrective lenses correct and sharpen eyesight, not weaken it. A corrective prescription usually becomes stronger as a person ages; perhaps that's how this wrong idea started. People noticed that eyeglass wearers needed stronger lenses *over time*.

However, contact lenses that are worn too long, or are slept in when they are not meant for overnight use, *can* cause eye infections. Check with your doctor about how to wear your contact lenses correctly.

### **Sweeteners make your eyes sensitive to light.**

**Fact.** Some people report having sensitive eyes after eating foods with artificial sweeteners. Some medicines, such as diabetes drugs, can also cause sensitive eyes.

"It appears that sweeteners such as aspartame have been associated with allergic responses. Migraine headaches, dizziness, and light sensitivity are some of the side effects that may occur," says Dankner.

Be sure to tell your eye doctor about any changes in your vision.

## **Eye Know-How**

## Want healthy eyes? Keep these tips in mind.

1. Kids and teens should have an eye exam every two to four years, according to the University of Michigan Kellogg Eye Center.
2. Wear *ultraviolet*-absorbing eyewear when outside. (Ultraviolet rays from the sun can burn.)
3. When playing sports, using tools, or doing chores such as mowing the lawn, wear protective eyewear.
4. Reduce glare on your computer screen. Control light from windows with blinds and shades.
5. Adjust your computer screen. Place the center five to nine inches below your line of sight.
6. Use the "20/20/20 Rule" when staring at a screen. Take a twenty-second break every twenty minutes. Then focus your eyes at least twenty feet away.
7. If you feel eyestrain during an activity such as watching TV, add light or take a break.
8. Do not use eye drops without an eye doctor's OK.
9. If you wear contact lenses, clean them daily and replace them on the recommended schedule.
10. Eat a balanced diet to help keep your eyes moist and healthy.

## Look Into Your Eyes!

Here are the parts of the eye.

**Cornea:** Helps the eye focus as light makes its way through

**Iris:** Colored part of the eye; helps control how much light goes through pupil

**Pupil:** Black circle in the center of the iris; lets light enter eye

**Sclera:** The protective white of the eye

**Retina:** Tissue that lines the inside of the eyeball

**Lens:** Focuses light rays onto the retina

**Optic Nerve:** Carries signals from retina to brain

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. According to the article, what kind of thing only happens in cartoons?

- A. getting your eyes stuck from crossing them
- B. blinking less often when watching TV
- C. eating foods with artificial sweeteners
- D. not being able to read after looking at the sun too long

2. Which of the following is listed in the passage?

- A. foods that promote good eye health
- B. tips for maintaining healthy eyes
- C. reasons for visiting the ophthalmologist
- D. medicines that can cause sensitive eyes

3. Common ideas about the eyes may not always be true.

What evidence from the text supports this statement?

- A. The author suggests using the "20/20/20 Rule" when staring at the screen of a computer, cell phone, or MP3 player.
- B. The author discusses four popular ideas about the eyes that people often think are true but are actually false.
- C. The author lists the different parts of the eye as well as the role each part plays.
- D. The author includes a joke from Dr. Stuart R. Dankner, who says, "You never see any rabbits wearing glasses!"

4. Review the section under the header, "Find out how much you know about healthy eyes." After reading this section, how might the author want the reader to feel about "facts" he or she may have heard about eye care?

- A. accepting
- B. trusting
- C. skeptical
- D. indifferent

5. What is the main idea of this text?

- A. Some "facts" about eye care are not actually true.
- B. Eating a balanced diet helps keep eyes moist and healthy.
- C. Artificial tears may only be used with a doctor's OK.
- D. Kids and teens should have an eye exam every two to four years.

6. Read this sentence from the text.

"What other eye-care "facts" are really fiction?"

Why might the author have put the word "facts" in quotation marks?

- A. because it was a quote spoken by the author
- B. to emphasize that these statements are not true
- C. because the author is not sure of the meaning of the word
- D. to remind the reader to look up the definition of the word

7. Choose the answer that best completes the sentence.

Wearing glasses does not weaken eyesight, \_\_\_\_\_ eyeglass wearers need stronger lenses over time.

- A. Although
- B. Because
- C. Since
- D. While

8. Staring too long at the screen of a computer, cell phone, or MP3 player can cause what?

9. List two fictions about eye health that people might believe to be true.

10. Explain how the fictions in the text about eye health may be related to something that is true.

Be sure to include at least two examples from the text to support your answer.



# Music and Your Mind

by Debbie Nevins, Kirsten Weir

## Listen up! Music has you in its power-physically and mentally.

New Orleans resident Ashton C., 13, likes to rock out. When he's not practicing guitar or drums, he's often listening to Led Zeppelin, AC/DC, or The Beatles. "I listen to the music over and over and just let it get into my system," he says.

Ashton is more right than he may know. Music really does get into our systems. It affects us physically-loud music can harm our ears, while soft music can help put us to sleep. And it affects us mentally-music can improve our moods. It can also help us memorize information. Think of the ABC song you learned as a child. There's a good reason the alphabet was made into a song. Without the melodic cue, you would have had a much harder time remembering it.

## Music: It's Only Human

Why does music have such power over us? After all, it isn't essential as food, water, and air are. We might enjoy it, but we don't need music to live. Or do we?

Music has been important to people as long as humankind has been around. Scientists have discovered ancient flutes made of animal bones that date to prehistoric times. Some researchers think early humans might have made music even before they developed language and speech.

And music exists everywhere humans do, says Diana Deutsch, an expert in music and memory. "People have not found a culture where there isn't music."

Likewise, you won't find music where there aren't people. Wait-are you wondering about birds? It's true that birdsong sounds musical to our ears. But to the birds, the calls are simply their way of communicating.

In general, all members of a given species make the same sounds. A robin speaks robin. A blackbird speaks blackbird. A sparrow doesn't create its own tone, melody, or pitch. Those chirps, pretty as they are, aren't music.

Only humans make music-it is literally part of us. Our brains are hardwired for it. Scientists don't know why. Perhaps it has to do with music's ability to communicate emotion. Studies have shown that even infants as young as eight months old can tell "happy" music from "sad" music.

## Pump It Up, Slow It Down

Music has the power to affect the body. Listening to fast, upbeat songs can make a person's heart rate and breathing rate speed up. That's why fast music is perfect for a workout-as Sarah S., of Deerfield, Ill., knows. "If I have a basketball game, I'll listen to music that will get me pumped up," the 14-year-old says.

Soothing music does the opposite. It brings down heart and breathing rates. Listening to gentle, slow music before bed helps people get a better night's sleep. Music can even reduce pain and depression.

## A Sound Track in Your Mind

As the ABC song shows, music is tied to memory. One study in China found that kids who took lessons on musical instruments did better on certain memory tests than kids who didn't play instruments.

And if the sound of an organ playing reminds you of that time your Uncle Mike took you to a big-league baseball game, you know how powerfully music can trigger memories-sometimes even long-lost ones.

"What seems to happen is that a piece of familiar music serves as a sound track for a mental movie that starts playing in our head," says Petr Janata. He is a scientist who studies music and the brain. "It calls back memories of a particular person or place, and you might all of a sudden see that person's face in your mind's eye."

Scientists are trying to solve the mystery of music's power. They are working to piece together a picture of what happens in the brain when people listen to or play music. So far, they know there's no one music center in our heads-music activates many areas of the brain.

Right now, while your brain is still growing, music plays an important role. Catriona Morrison, a researcher with the University of Leeds in England, found that music leaves its most lasting impression on people around age 14. And the songs you listen to in your teens will probably influence the type of music you listen to for the rest of your life.

## Attack of the Earworms



Do songs ever get "stuck in your head"? Those tunes have a name: earworms.

What makes certain jingles so catchy? Nobody knows for



Getty Images

sure, but James Kellaris-also known as "Dr. Earworm"-is trying to find out. Kellaris is a researcher at the University of Cincinnati. He says that almost any song can become an earworm. But simple, repetitive, or surprising songs are the usual culprits.

Kellaris says earworms are more likely to strike if you're stressed or fatigued. So play some calming tunes and get a good night's rest-or you might wake up with a tune such as Subway's "\$5 Footlong" song playing on an endless loop in

your head!

## What's Your Earworm?

Kellaris says some songs, such as "Y.M.C.A.," are common earworms. Sarah S. says she gets jingles from TV commercials stuck in her head. Ashton C. says the singer Lady Gaga is responsible for some of his worst earworms. Michael P., 12, of New Jersey gets tunes from *Hannah Montana* commercials lodged in his brain-and he hates that show. Clearly, earworms are all in the ear of the beholder!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is something that only humans make?
  - A. sound
  - B. music
  - C. loud noise
  - D. soft noise
  
2. What is an effect of listening to gentle, slow music before bed?
  - A. getting a better night's sleep
  - B. falling asleep later than usual
  - C. waking up early the next morning
  - D. having pleasant, soothing dreams
  
3. Music has been around as long as humans have.

What evidence in the article supports this statement?

- A. "Scientists have discovered ancient flutes made of animal bones that date to prehistoric times."
  - B. "In general, all members of a given species make the same sounds."
  - C. "Studies have shown that even infants as young as eight months old can tell 'happy' music from 'sad' music."
  - D. "Music has the power to affect the body."
- 
4. What is an example of music affecting people mentally?
    - A. Music can make a person's heart rate speed up.
    - B. Music can help people memorize information.
    - C. Music can harm people's ears.
    - D. Music can make a person's breathing rate slow down.

5. What is the main idea of this text?

- A. All members of a given species make the same sounds.
- B. Listening to fast songs can make a person's heart rate speed up.
- C. Music is connected to memory.
- D. Music affects people physically and mentally.

6. Read these sentences from the text.

"Why does music have such power over us? After all, it isn't essential as food, water, and air are. We might enjoy it, but we don't need music to live. Or do we?"

Based on these sentences, what does the word "essential" mean?

- A. strong
- B. unimportant
- C. necessary
- D. enjoyable

7. Choose the answer that best completes the sentence.

There's no one music center in our heads. \_\_\_\_\_, music activates many areas of the brain.

- A. In particular
- B. On the contrary
- C. Previously
- D. In the end

8. According to the text, what can reduce pain and depression?

9. The authors state that music can "help us memorize information." What evidence in the text supports this statement?

10. The authors claim that music is "important to people."

Support this claim with evidence from the text.



# Rumpelstiltskin

by The Grimm Brothers

Once there was a miller who was poor, but who had a beautiful daughter. Now it happened that he had to go and speak to the King, and in order to make himself appear important he said to him, "I have a daughter who can spin straw into gold."

The King said to the miller, "That is an art which pleases me well. If your daughter is as clever as you say, bring her tomorrow to my palace, and I will try what she can do."

And when the girl was brought to him he took her into a room which was quite full of straw, gave her a spinning-wheel and a reel, and said, "Now set to work, and if by tomorrow morning early you have not spun this straw into gold during the night, you must die."

Thereupon he himself locked up the room, and left her in it alone. So there sat the poor miller's daughter, and for the life of her could not tell what to do. She had no idea how straw could be spun into gold, and she grew more and more miserable, until at last she began to weep.

But all at once the door opened, and in came a little man, and said, "Good evening, Mistress Miller; why are you crying so?"

"Alas!" answered the girl, "I have to spin straw into gold, and I do not know how to do it."

"What will you give me," said the manikin, "if I do it for you?"

"My necklace," said the girl.

The little man took the necklace, seated himself in front of the wheel, and "whirr, whirr, whirr," three turns and the reel was full. Then he put another on, and whirr, whirr, whirr, three times round, and the second was full too. And so it went on until the morning, when all the straw was spun, and all the reels were full of gold. By daybreak the King was already there, and when he saw the gold he was astonished and delighted, but his heart became only more greedy. He had the miller's daughter taken into another room full of straw, which was much larger, and commanded her to spin that also in one night if she valued her life.

The girl knew not how to help herself, and was crying, when the door again opened, and the little man appeared and said, "What will you give me if I spin that straw into gold for you?"

"The ring on my finger," answered the girl. The little man took the ring, again began to turn the wheel,



and by morning had spun all the straw into glittering gold.

The King rejoiced beyond measure at the sight, but still he had not gold enough. He had the miller's daughter taken into a still larger room full of straw, and said, "You must spin this, too, in the course of this night; but if you succeed, you shall be my wife."

"Even if she be a miller's daughter," thought he, "I could not find a richer wife in the whole world."

When the girl was alone the manikin came again for the third time, and said, "What will you give me if I spin the straw for you this time also?"

"I have nothing left that I could give," answered the girl.

"Then promise me, if you should become Queen, your first child."

"Who knows whether that will ever happen?" thought the miller's daughter. Not knowing how else to help herself in this strait, she promised the manikin what he wanted, and for that he once more span the straw into gold.

And when the King came in the morning and found all as he had wished, he took her in marriage, and the pretty miller's daughter became a Queen.

A year after, she had a beautiful child, and she never gave a thought to the manikin. But suddenly he came into her room, and said, "Now give me what you promised." The Queen was horror-struck, and offered the manikin all the riches of the kingdom if he would leave her the child. But the manikin said, "No, something that is living is dearer to me than all the treasures in the world." Then the Queen began to weep and cry, so that the manikin pitied her. "I will give you three days' time," said he. "If by that time you find out my name, then shall you keep your child."

So the Queen thought the whole night of all the names that she had ever heard, and she sent a messenger over the country to inquire, far and wide, for any other names that there might be. When the manikin came the next day, she began with Caspar, Melchior, Balthazar, and said all the names she knew, one after another. But to every one the little man said, "That is not my name."

On the second day she had inquiries made in the neighborhood as to the names of the people there, and she repeated to the manikin the most uncommon and curious. "Perhaps your name is Shortribs, or Sheepshanks, or Laceleg?" but he always answered, "That is not my name."

On the third day the messenger came back again, and said, "I have not been able to find a single new name, but as I came to a high mountain at the end of the forest, where the fox and the hare bid each other good night, there I saw a little house, and before the house a fire was burning, and round about the fire quite a ridiculous little man was jumping: he hopped upon one leg, and shouted-'Today I bake, tomorrow brew / The next I'll have the young Queen's child / Ha! glad am I that no one knew / That Rumpelstiltskin I am styled.'"

You may think how glad the Queen was when she heard the name! And when soon afterwards the little man came in and asked, "Now, Mistress Queen, what is my name?"

At first she said, "Is your name Conrad?"

"No."

"Is your name Harry?"

"No."

"Perhaps your name is Rumpelstiltskin?"

"The devil has told you that! The devil has told you that!" cried the little man, and in his anger he plunged his right foot so deep into the earth that his whole leg went in. Then in rage he pulled at his left leg so hard with both hands that he tore himself in two.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Who spun the straw into gold?

- A. the miller
- B. the miller's daughter
- C. the king
- D. the little man

2. What problem does the miller's daughter face at the beginning of the story?

- A. She does not love the king, but her father has threatened to kill her if she does not marry the king.
- B. She does not know how to spin straw into gold, but the king has threatened to kill her if she does not spin his straw into gold.
- C. She wants her necklace and ring back, but she has already given them to the little man in exchange for his help.
- D. She is afraid of the little man, but he is the only one who can spin straw into gold for her.

3. The little man is positive that nobody knows his name. What evidence from the text best supports this conclusion?

- A. "'I will give you three days' time,' said he. 'If by that time you find out my name, then shall you keep your child.'"
- B. "'Ha! glad am I that no one knew / That Rumpelstiltskin I am styled.'"
- C. "'Perhaps your name is Shortribs, or Sheepshanks, or Laceleg?' but he always answered, 'That is not my name.'"
- D. "And when soon afterwards the little man came in, and asked, 'Now, Mistress Queen, what is my name?'"

4. Why might Rumpelstiltskin have been jumping and shouting in his house?

- A. He was panicking because he thought his house had caught on fire.
- B. He was celebrating, thinking he was going to get the Queen's child.
- C. He was performing a magical spell to get the Queen's child.
- D. He was upset because he knew that the Queen knew his name.



5. What is a theme of this story?

- A. It's important to keep one's promises.
- B. One should not be greedy.
- C. It's important to forgive others.
- D. One should pity the less fortunate.

6. Read these sentences from the text:

"[The manikin said,] 'What will you give me if I spin the straw for you this time also?'

"I have nothing left that I could give,' answered the girl.

"Then promise me, if you should become Queen, your first child.'

"Who knows whether that will ever happen?' thought the miller's daughter; and, not knowing how else to help herself in this strait, she promised the manikin what he wanted, and for that he once more span the straw into gold."

What does the phrase "not knowing how else to help herself in this strait" mean based on these sentences?

- A. not knowing how to act like a Queen
- B. not knowing how to spin straw into gold
- C. not knowing how to break a promise
- D. not knowing how else to solve her problem

7. Choose the answer that best completes the sentence:

The miller's daughter gave the manikin her necklace, \_\_\_\_\_ he spun the straw into gold.

- A. but
- B. yet
- C. so
- D. like

8. The first time the little man comes to the miller's daughter, she gives him her necklace. What does she give to the little man the second time he appears?

9. Why did the little man make the miller's daughter promise to give him her first child?

Support your answer with evidence from the text.

10. Rumpelstiltskin is greedy.

Using evidence from the text, form an argument for or against this description of Rumpelstiltskin.

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# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Evaluate square roots and cube roots. Simplify each expression.

Form A

1  $\sqrt{16} =$  \_\_\_\_\_

2  $\sqrt[3]{0} =$  \_\_\_\_\_

3  $\sqrt{1} =$  \_\_\_\_\_

4  $\sqrt{64} =$  \_\_\_\_\_

5  $\sqrt{144} =$  \_\_\_\_\_

6  $\sqrt{169} =$  \_\_\_\_\_

7  $\sqrt[3]{8} =$  \_\_\_\_\_

8  $\sqrt{100} =$  \_\_\_\_\_

9  $\sqrt{49} =$  \_\_\_\_\_

10  $\sqrt[3]{27} =$  \_\_\_\_\_

11  $\sqrt[3]{125} =$  \_\_\_\_\_

12  $\sqrt{2,500} =$  \_\_\_\_\_

13  $\sqrt[3]{64} =$  \_\_\_\_\_

14  $\sqrt{900} =$  \_\_\_\_\_

15  $\sqrt{36} =$  \_\_\_\_\_

16  $\sqrt{441} =$  \_\_\_\_\_

17  $\sqrt[3]{1,000} =$  \_\_\_\_\_

18  $\sqrt{25} =$  \_\_\_\_\_

## Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Evaluate square roots and cube roots. Simplify each expression.

Form B

1  $\sqrt{9} =$  \_\_\_\_\_

2  $\sqrt[3]{1} =$  \_\_\_\_\_

3  $\sqrt{0} =$  \_\_\_\_\_

4  $\sqrt{81} =$  \_\_\_\_\_

5  $\sqrt{121} =$  \_\_\_\_\_

6  $\sqrt[3]{1,000} =$  \_\_\_\_\_

7  $\sqrt[3]{27} =$  \_\_\_\_\_

8  $\sqrt{25} =$  \_\_\_\_\_

9  $\sqrt{4} =$  \_\_\_\_\_

10  $\sqrt{225} =$  \_\_\_\_\_

11  $\sqrt{400} =$  \_\_\_\_\_

12  $\sqrt[3]{216} =$  \_\_\_\_\_

13  $\sqrt{64} =$  \_\_\_\_\_

14  $\sqrt{1,600} =$  \_\_\_\_\_

15  $\sqrt{625} =$  \_\_\_\_\_

16  $\sqrt[3]{8} =$  \_\_\_\_\_

17  $\sqrt[3]{512} =$  \_\_\_\_\_

18  $\sqrt{961} =$  \_\_\_\_\_



## Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Solve equations of the form  $x^2 = p$  and  $x^3 = p$ .

Form A

1  $x^2 = 1$ ;  $x =$  \_\_\_\_\_

2  $x^2 = 49$ ;  $x =$  \_\_\_\_\_

3  $x^3 = 8$ ;  $x =$  \_\_\_\_\_

4  $x^2 = 100$ ;  $x =$  \_\_\_\_\_

5  $x^2 = \frac{4}{9}$ ;  $x =$  \_\_\_\_\_

6  $x^2 = 144$ ;  $x =$  \_\_\_\_\_

7  $x^3 = \frac{1}{8}$ ;  $x =$  \_\_\_\_\_

8  $x^2 = \frac{81}{100}$ ;  $x =$  \_\_\_\_\_

9  $x^2 = 16$ ;  $x =$  \_\_\_\_\_

10  $x^3 = 64$ ;  $x =$  \_\_\_\_\_

11  $x^2 = 900$ ;  $x =$  \_\_\_\_\_

12  $x^2 = \frac{1}{49}$ ;  $x =$  \_\_\_\_\_

13  $x^3 = 125$ ;  $x =$  \_\_\_\_\_

14  $x^2 = \frac{36}{49}$ ;  $x =$  \_\_\_\_\_

15  $x^2 = \frac{9}{25}$ ;  $x =$  \_\_\_\_\_

16  $x^2 = 2,500$ ;  $x =$  \_\_\_\_\_

17  $x^3 = \frac{1}{27}$ ;  $x =$  \_\_\_\_\_

18  $x^2 = 36$ ;  $x =$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Solve equations of the form  $x^2 = p$  and  $x^3 = p$ .

Form B

1  $x^2 = 121$ ;  $x =$  \_\_\_\_\_

2  $x^3 = 1,000$ ;  $x =$  \_\_\_\_\_

3  $x^2 = \frac{25}{49}$ ;  $x =$  \_\_\_\_\_

4  $x^2 = 25$ ;  $x =$  \_\_\_\_\_

5  $x^2 = \frac{9}{64}$ ;  $x =$  \_\_\_\_\_

6  $x^3 = 1$ ;  $x =$  \_\_\_\_\_

7  $x^2 = 9$ ;  $x =$  \_\_\_\_\_

8  $x^3 = \frac{27}{64}$ ;  $x =$  \_\_\_\_\_

9  $x^2 = 0$ ;  $x =$  \_\_\_\_\_

10  $x^2 = \frac{121}{144}$ ;  $x =$  \_\_\_\_\_

11  $x^2 = 1,600$ ;  $x =$  \_\_\_\_\_

12  $x^3 = \frac{64}{125}$ ;  $x =$  \_\_\_\_\_

13  $x^2 = 441$ ;  $x =$  \_\_\_\_\_

14  $x^2 = \frac{49}{81}$ ;  $x =$  \_\_\_\_\_

15  $x^2 = 225$ ;  $x =$  \_\_\_\_\_

16  $x^3 = 216$ ;  $x =$  \_\_\_\_\_

17  $x^2 = 625$ ;  $x =$  \_\_\_\_\_

18  $x^2 = \frac{1}{9}$ ;  $x =$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate irrational numbers.

Form A

Write the two consecutive whole numbers that the given number is between.

1  $\sqrt{5}$  \_\_\_\_\_

2  $\sqrt{10}$  \_\_\_\_\_

3  $\sqrt{8}$  \_\_\_\_\_

4  $\sqrt{28}$  \_\_\_\_\_

5  $\sqrt{23}$  \_\_\_\_\_

6  $\sqrt{84}$  \_\_\_\_\_

7  $\sqrt{45}$  \_\_\_\_\_

8  $\sqrt{29}$  \_\_\_\_\_

9  $\sqrt{70}$  \_\_\_\_\_

Approximate to the nearest whole number.

10  $\sqrt{5} \approx$  \_\_\_\_\_

11  $\sqrt{10} \approx$  \_\_\_\_\_

12  $\sqrt{8} \approx$  \_\_\_\_\_

13  $\sqrt{28} \approx$  \_\_\_\_\_

14  $\sqrt{23} \approx$  \_\_\_\_\_

15  $\sqrt{84} \approx$  \_\_\_\_\_

16  $\sqrt{45} \approx$  \_\_\_\_\_

17  $\sqrt{29} \approx$  \_\_\_\_\_

18  $\sqrt{70} \approx$  \_\_\_\_\_

Approximate to the nearest tenth.

19  $\sqrt{5} \approx$  \_\_\_\_\_

20  $\sqrt{10} \approx$  \_\_\_\_\_

21  $\sqrt{8} \approx$  \_\_\_\_\_

22  $\sqrt{28} \approx$  \_\_\_\_\_

23  $\sqrt{23} \approx$  \_\_\_\_\_

24  $\sqrt{84} \approx$  \_\_\_\_\_

Approximate to the nearest hundredth.

25  $\sqrt{5} \approx$  \_\_\_\_\_

26  $\sqrt{10} \approx$  \_\_\_\_\_

27  $\sqrt{8} \approx$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate irrational numbers.

Form B

Write the two consecutive whole numbers that the given number is between.

1  $\sqrt{2}$  \_\_\_\_\_

2  $\sqrt{3}$  \_\_\_\_\_

3  $\sqrt{7}$  \_\_\_\_\_

4  $\sqrt{14}$  \_\_\_\_\_

5  $\sqrt{55}$  \_\_\_\_\_

6  $\sqrt{39}$  \_\_\_\_\_

7  $\sqrt{99}$  \_\_\_\_\_

8  $\sqrt{39}$  \_\_\_\_\_

9  $\sqrt{24}$  \_\_\_\_\_

Approximate to the nearest whole number.

10  $\sqrt{2} \approx$  \_\_\_\_\_

11  $\sqrt{3} \approx$  \_\_\_\_\_

12  $\sqrt{7} \approx$  \_\_\_\_\_

13  $\sqrt{14} \approx$  \_\_\_\_\_

14  $\sqrt{55} \approx$  \_\_\_\_\_

15  $\sqrt{39} \approx$  \_\_\_\_\_

16  $\sqrt{99} \approx$  \_\_\_\_\_

17  $\sqrt{39} \approx$  \_\_\_\_\_

18  $\sqrt{24} \approx$  \_\_\_\_\_

Approximate to the nearest tenth.

19  $\sqrt{2} \approx$  \_\_\_\_\_

20  $\sqrt{3} \approx$  \_\_\_\_\_

21  $\sqrt{7} \approx$  \_\_\_\_\_

22  $\sqrt{14} \approx$  \_\_\_\_\_

23  $\sqrt{55} \approx$  \_\_\_\_\_

24  $\sqrt{39} \approx$  \_\_\_\_\_

Approximate to the nearest hundredth.

25  $\sqrt{2} \approx$  \_\_\_\_\_

26  $\sqrt{3} \approx$  \_\_\_\_\_

27  $\sqrt{7} \approx$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate expressions with irrational numbers.

Form A

Give the two consecutive whole numbers that the given expression is between.

1  $2\sqrt{3}$  \_\_\_\_\_

2  $2\pi$  \_\_\_\_\_

3  $\sqrt{35} + 2$  \_\_\_\_\_

4  $\frac{4}{3}\pi$  \_\_\_\_\_

5  $4\sqrt{5}$  \_\_\_\_\_

6  $\sqrt{48} - 2$  \_\_\_\_\_

Approximate the value of the expression to the nearest whole number.

7  $\sqrt{5} + \sqrt{2} \approx$  \_\_\_\_\_

8  $\pi^2 \approx$  \_\_\_\_\_

9  $\frac{\sqrt{82}}{4} \approx$  \_\_\_\_\_

10  $3\pi \approx$  \_\_\_\_\_

11  $(\sqrt{2})^3 \approx$  \_\_\_\_\_

12  $3\sqrt{24} \approx$  \_\_\_\_\_

Approximate the value of the expression to the nearest tenth.

13  $\sqrt{3} - \sqrt{2} \approx$  \_\_\_\_\_

14  $\frac{\sqrt{2}}{2} \approx$  \_\_\_\_\_

15  $\frac{1}{\sqrt{3}} \approx$  \_\_\_\_\_

16  $\frac{\pi}{2} \approx$  \_\_\_\_\_

17  $\frac{2}{\sqrt{2}} \approx$  \_\_\_\_\_

18  $5 - \pi \approx$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Approximate expressions with irrational numbers.

Form B

Give the two consecutive whole numbers that the given expression is between.

1  $2\sqrt{2}$  \_\_\_\_\_

2  $4\pi$  \_\_\_\_\_

3  $\sqrt{35} - 2$  \_\_\_\_\_

4  $\frac{2}{3}\pi$  \_\_\_\_\_

5  $4\sqrt{8}$  \_\_\_\_\_

6  $\sqrt{48} + 2$  \_\_\_\_\_

Approximate the value of the expression to the nearest whole number.

7  $\sqrt{3} + \sqrt{2} \approx$  \_\_\_\_\_

8  $\pi^3 \approx$  \_\_\_\_\_

9  $\frac{\sqrt{65}}{3} \approx$  \_\_\_\_\_

10  $\frac{\pi}{3} \approx$  \_\_\_\_\_

11  $(\sqrt{3})^3 \approx$  \_\_\_\_\_

12  $4\sqrt{26} \approx$  \_\_\_\_\_

Approximate the value of the expression to the nearest tenth.

13  $\sqrt{5} - \sqrt{3} \approx$  \_\_\_\_\_

14  $\frac{\sqrt{3}}{2} \approx$  \_\_\_\_\_

15  $\frac{1}{\sqrt{2}} \approx$  \_\_\_\_\_

16  $5\pi \approx$  \_\_\_\_\_

17  $\frac{2}{\sqrt{3}} \approx$  \_\_\_\_\_

18  $6 - \pi \approx$  \_\_\_\_\_



# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Rewrite a repeating decimal as a fraction.

Form A

1  $0.\overline{6} =$  \_\_\_\_\_

2  $0.\overline{63} =$  \_\_\_\_\_

3  $0.\overline{4} =$  \_\_\_\_\_

4  $0.8\overline{3} =$  \_\_\_\_\_

5  $0.1\overline{3} =$  \_\_\_\_\_

6  $0.2\overline{7} =$  \_\_\_\_\_

7  $0.6\overline{1} =$  \_\_\_\_\_

8  $0.0\overline{6} =$  \_\_\_\_\_

9  $0.9\overline{4} =$  \_\_\_\_\_

10  $0.\overline{36} =$  \_\_\_\_\_

11  $0.\overline{7} =$  \_\_\_\_\_

12  $0.\overline{54} =$  \_\_\_\_\_

13  $0.41\overline{6} =$  \_\_\_\_\_

14  $0.8\overline{6} =$  \_\_\_\_\_

15  $0.08\overline{3} =$  \_\_\_\_\_

16  $0.2\overline{7} =$  \_\_\_\_\_

17  $0.\overline{1} =$  \_\_\_\_\_

18  $0.\overline{90} =$  \_\_\_\_\_

# Rational and Irrational Numbers— Skills Practice

Name: \_\_\_\_\_

Rewrite a repeating decimal as a fraction.

Form B

1  $0.\overline{3} =$  \_\_\_\_\_

2  $0.\overline{81} =$  \_\_\_\_\_

3  $0.\overline{5} =$  \_\_\_\_\_

4  $0.\overline{16} =$  \_\_\_\_\_

5  $0.\overline{73} =$  \_\_\_\_\_

6  $0.\overline{38} =$  \_\_\_\_\_

7  $0.\overline{72} =$  \_\_\_\_\_

8  $0.\overline{26} =$  \_\_\_\_\_

9  $0.\overline{53} =$  \_\_\_\_\_

10  $0.\overline{18} =$  \_\_\_\_\_

11  $0.\overline{2} =$  \_\_\_\_\_

12  $0.\overline{45} =$  \_\_\_\_\_

13  $0.\overline{583} =$  \_\_\_\_\_

14  $0.\overline{05} =$  \_\_\_\_\_

15  $0.\overline{916} =$  \_\_\_\_\_

16  $0.\overline{09} =$  \_\_\_\_\_

17  $0.\overline{8} =$  \_\_\_\_\_

18  $0.\overline{72} =$  \_\_\_\_\_



# Rational and Irrational Numbers— Repeated Reasoning

Name: \_\_\_\_\_

Find patterns in repeating decimals. Rewrite each decimal as a fraction.

## Set A

1  $0.\overline{3} =$  \_\_\_\_\_

2  $0.0\overline{3} =$  \_\_\_\_\_

3  $0.00\overline{3} =$  \_\_\_\_\_

4  $0.\overline{4} =$  \_\_\_\_\_

5  $0.0\overline{4} =$  \_\_\_\_\_

6  $0.00\overline{4} =$  \_\_\_\_\_

7  $0.\overline{5} =$  \_\_\_\_\_

8  $0.0\overline{5} =$  \_\_\_\_\_

9  $0.00\overline{5} =$  \_\_\_\_\_

## Set B

1  $0.\overline{3} =$  \_\_\_\_\_

2  $0.0\overline{3} =$  \_\_\_\_\_

3  $0.00\overline{3} =$  \_\_\_\_\_

4  $0.\overline{4} =$  \_\_\_\_\_

5  $0.0\overline{4} =$  \_\_\_\_\_

6  $0.00\overline{4} =$  \_\_\_\_\_

7  $0.\overline{5} =$  \_\_\_\_\_

8  $0.0\overline{5} =$  \_\_\_\_\_

9  $0.00\overline{5} =$  \_\_\_\_\_

Describe a pattern you see in one of the sets of problems above.

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# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify expressions with exponents.

Form A

Rewrite each expression using a single nonnegative exponent.

1  $y^5 \cdot y^7 =$  \_\_\_\_\_

2  $(m^3)^4 =$  \_\_\_\_\_

3  $n^6 \cdot n^5 =$  \_\_\_\_\_

4  $\frac{m^3}{m^9} =$  \_\_\_\_\_

5  $(n^9)^3 =$  \_\_\_\_\_

6  $\frac{w^8}{w^4} =$  \_\_\_\_\_

Evaluate each expression.

7  $4^2 \cdot 4^1 =$  \_\_\_\_\_

8  $2^3 \cdot 5^3 =$  \_\_\_\_\_

9  $(2^3)^4 =$  \_\_\_\_\_

10  $(5^2)^3 =$  \_\_\_\_\_

11  $6^2 \cdot 7^2 =$  \_\_\_\_\_

12  $\frac{3^3}{3^5} =$  \_\_\_\_\_

13  $3^3 \cdot 3^2 =$  \_\_\_\_\_

14  $\frac{8^3}{2^3} =$  \_\_\_\_\_

15  $\frac{2^6}{2^3} =$  \_\_\_\_\_

16  $2^4 \cdot 3^4 =$  \_\_\_\_\_

17  $\frac{4^2}{2^2} =$  \_\_\_\_\_

18  $\frac{5^3}{5^2} =$  \_\_\_\_\_



# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify expressions with exponents.

Form B

Rewrite each expression using a single nonnegative exponent.

1  $y^4 \cdot y^{11} =$  \_\_\_\_\_

2  $(m^2)^7 =$  \_\_\_\_\_

3  $n^8 \cdot n^5 =$  \_\_\_\_\_

4  $\frac{m^2}{m^6} =$  \_\_\_\_\_

5  $(n^8)^7 =$  \_\_\_\_\_

6  $\frac{w^{10}}{w^5} =$  \_\_\_\_\_

Evaluate each expression.

7  $5^2 \cdot 5^4 =$  \_\_\_\_\_

8  $2^1 \cdot 6^1 =$  \_\_\_\_\_

9  $(2^2)^5 =$  \_\_\_\_\_

10  $(3^2)^2 =$  \_\_\_\_\_

11  $4^2 \cdot 2^2 =$  \_\_\_\_\_

12  $\frac{3^6}{3^6} =$  \_\_\_\_\_

13  $2^2 \cdot 2^4 =$  \_\_\_\_\_

14  $\frac{10^3}{2^3} =$  \_\_\_\_\_

15  $\frac{2^5}{2^3} =$  \_\_\_\_\_

16  $4^3 \cdot 2^3 =$  \_\_\_\_\_

17  $\frac{4^2}{8^2} =$  \_\_\_\_\_

18  $\frac{4^3}{4^2} =$  \_\_\_\_\_



# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify more expressions with exponents.

Form A

Rewrite each expression using a single exponent.

1  $y^{-3} \cdot y^{-7} =$  \_\_\_\_\_

2  $(m^{-2})^3 =$  \_\_\_\_\_

3  $n^{-2} \cdot n^8 =$  \_\_\_\_\_

4  $\frac{m^{-10}}{m^{-5}} =$  \_\_\_\_\_

5  $(n^{-4})^{-4} =$  \_\_\_\_\_

6  $\frac{w^6}{w^{-5}} =$  \_\_\_\_\_

Evaluate each expression.

7  $2^{-4} \cdot 2^{-2} =$  \_\_\_\_\_

8  $0^7 \cdot 2^7 =$  \_\_\_\_\_

9  $(2^{-3})^{-3} =$  \_\_\_\_\_

10  $(3^{-4})^0 =$  \_\_\_\_\_

11  $(-2)^{-2} \cdot (-2)^{-2} =$  \_\_\_\_\_

12  $\frac{(-6)^3}{(-6)^2} =$  \_\_\_\_\_

13  $3^0 \cdot 3^{-4} =$  \_\_\_\_\_

14  $\frac{7^{-2}}{3^{-2}} =$  \_\_\_\_\_

15  $\frac{4^{-2}}{4^{-5}} =$  \_\_\_\_\_

16  $(-5)^4 \cdot (-5)^{-3} =$  \_\_\_\_\_

17  $\frac{(-8)^0}{(-7)^0} =$  \_\_\_\_\_

18  $\frac{(-4)^3}{(-6)^3} =$  \_\_\_\_\_



# Integer Exponents—Skills Practice

Name: \_\_\_\_\_

Simplify more expressions with exponents.

Form B

Rewrite each expression using a single exponent.

1  $y^{-4} \cdot y^{-5} =$  \_\_\_\_\_

2  $(m^{-3})^5 =$  \_\_\_\_\_

3  $n^{-3} \cdot n^6 =$  \_\_\_\_\_

4  $\frac{m^{-12}}{m^{-6}} =$  \_\_\_\_\_

5  $(n^{-2})^{-2} =$  \_\_\_\_\_

6  $\frac{w^5}{w^{-7}} =$  \_\_\_\_\_

Evaluate each expression.

7  $2^{-3} \cdot 2^{-2} =$  \_\_\_\_\_

8  $(-6)^4 \cdot (-6)^{-3} =$  \_\_\_\_\_

9  $(4^{-6})^0 =$  \_\_\_\_\_

10  $(3^{-2})^{-2} =$  \_\_\_\_\_

11  $(-3)^{-2} \cdot (-4)^{-2} =$  \_\_\_\_\_

12  $\frac{(-5)^4}{(-5)^3} =$  \_\_\_\_\_

13  $4^0 \cdot 4^{-3} =$  \_\_\_\_\_

14  $\frac{8^{-2}}{3^{-2}} =$  \_\_\_\_\_

15  $\frac{3^{-2}}{3^{-5}} =$  \_\_\_\_\_

16  $0^6 \cdot 2^6 =$  \_\_\_\_\_

17  $\frac{(-6)^3}{(3)^3} =$  \_\_\_\_\_

18  $\frac{(-6)^0}{(-5)^0} =$  \_\_\_\_\_

## Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find patterns in products of powers with the same base.

Expand each factor. Write the product in expanded form. Then write the product using an exponent. The first one is done for you.

1  $2^3 \times 2^2 = (2 \times 2 \times 2) \times (2 \times 2) = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$

2  $3^3 \times 3^2 =$  \_\_\_\_\_

3  $4^3 \times 4^2 =$  \_\_\_\_\_

4  $5^3 \times 5^2 =$  \_\_\_\_\_

5  $6^3 \times 6^2 =$  \_\_\_\_\_

6  $7^3 \times 7^2 =$  \_\_\_\_\_

7  $8^3 \times 8^2 =$  \_\_\_\_\_

8  $9^3 \times 9^2 =$  \_\_\_\_\_

9  $n^3 \times n^2 =$  \_\_\_\_\_

10  $4.2^3 \times 4.2^2 =$  \_\_\_\_\_

Describe a pattern or relationship you see between the problems and the answers. Explain what the pattern means or why it happens.

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# Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find more patterns in products of powers with the same base.  
Write each expression as a power of a single number.

## Set A

1  $3^2 \times 3^1 =$  \_\_\_\_\_

2  $3^{-2} \times 3^{-1} =$  \_\_\_\_\_

3  $3^2 \times 3^2 =$  \_\_\_\_\_

4  $3^{-2} \times 3^{-2} =$  \_\_\_\_\_

5  $3^2 \times 3^3 =$  \_\_\_\_\_

6  $3^{-2} \times 3^{-3} =$  \_\_\_\_\_

7  $3^2 \times 3^4 =$  \_\_\_\_\_

8  $3^{-2} \times 3^{-4} =$  \_\_\_\_\_

9  $3^2 \times 3^5 =$  \_\_\_\_\_

10  $3^{-2} \times 3^{-5} =$  \_\_\_\_\_

11  $3^2 \times 3^6 =$  \_\_\_\_\_

12  $3^{-2} \times 3^{-6} =$  \_\_\_\_\_

## Set B

1  $3^{-2} \times 3^1 =$  \_\_\_\_\_

2  $3^{-2} \times 3^2 =$  \_\_\_\_\_

3  $3^{-2} \times 3^3 =$  \_\_\_\_\_

4  $3^2 \times 3^{-1} =$  \_\_\_\_\_

5  $3^2 \times 3^{-2} =$  \_\_\_\_\_

6  $3^2 \times 3^{-3} =$  \_\_\_\_\_

Describe a pattern you see in one of the sets of problems above.

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## Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find patterns in quotients of powers with the same base.

Expand each term in the quotient of powers. Write the quotient in expanded form. Then write the quotient using an exponent. The first one has been done for you.

1  $2^5 \div 2^3 = (2 \cdot 2 \cdot 2 \cdot 2 \cdot 2) \div (2 \cdot 2 \cdot 2) = 2 \cdot 2 = 2^2$

2  $3^5 \div 3^3 =$  \_\_\_\_\_

3  $4^5 \div 4^3 =$  \_\_\_\_\_

4  $5^5 \div 5^3 =$  \_\_\_\_\_

5  $6^5 \div 6^3 =$  \_\_\_\_\_

6  $7^5 \div 7^3 =$  \_\_\_\_\_

7  $8^5 \div 8^3 =$  \_\_\_\_\_

8  $9^5 \div 9^3 =$  \_\_\_\_\_

9  $n^5 \div n^3 =$  \_\_\_\_\_

10  $6.3^5 \div 6.3^3 =$  \_\_\_\_\_

Describe a pattern or relationship you see between the problems and the answers. Explain what the pattern means or why it happens.

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## Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find more patterns in quotients of powers with the same base.

Expand each term in the quotient of powers. Write the quotient in expanded form. Then write the quotient using an exponent. The first one has been done for you.

1  $2^4 \div 2^1 = (2 \times 2 \times 2 \times 2) \div (2) = 2 \times 2 \times 2 = 2^3$

2  $2^4 \div 2^2 =$  \_\_\_\_\_

3  $2^4 \div 2^3 =$  \_\_\_\_\_

4  $2^4 \div 2^4 =$  \_\_\_\_\_

5  $2^4 \div 2^5 =$  \_\_\_\_\_

6  $2^4 \div 2^6 =$  \_\_\_\_\_

7  $2^4 \div 2^7 =$  \_\_\_\_\_

8  $4.3^5 \div 4.3^2 =$  \_\_\_\_\_

Describe a pattern or relationship you see between the problems and the answers. Explain what the pattern means or why it happens.

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## Integer Exponents—Repeated Reasoning

Name: \_\_\_\_\_

Find patterns in products of powers with different bases.

Expand each factor. Rewrite the expanded form as a power of a product. Then simplify. The first one has been done for you.

### Set A

1  $2^2 \times 4^2 = 2 \times 2 \times 4 \times 4 = (2 \times 4)^2 = 8^2$

2  $2^3 \times 4^3 =$  \_\_\_\_\_

3  $2^4 \times 4^4 =$  \_\_\_\_\_

4  $3^2 \times 5^2 =$  \_\_\_\_\_

5  $3^3 \times 5^3 =$  \_\_\_\_\_

6  $n^5 \times m^5 =$  \_\_\_\_\_

Write the base as a product of two factors. Use the exponent to expand the product. Then write it as a product of two exponential expressions. The first one has been done for you.

### Set B

1  $10^2 = (2 \times 5)^2 = 2 \times 5 \times 2 \times 5 = 2^2 \times 5^2$

2  $10^3 =$  \_\_\_\_\_

3  $10^4 =$  \_\_\_\_\_

4  $6^2 =$  \_\_\_\_\_

5  $6^3 =$  \_\_\_\_\_

6  $(mn)^5 =$  \_\_\_\_\_

Describe a pattern you see in one of the sets of problems above.

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## Scientific Notation—Skills Practice

Name: \_\_\_\_\_

Write the numbers in scientific notation.

Form A

1  $4,500 =$  \_\_\_\_\_

2  $0.0578 =$  \_\_\_\_\_

3  $57 =$  \_\_\_\_\_

4  $0.006256 =$  \_\_\_\_\_

5  $730 =$  \_\_\_\_\_

6  $0.000042 =$  \_\_\_\_\_

7  $0.007 =$  \_\_\_\_\_

8  $25.63 =$  \_\_\_\_\_

9  $300.25 =$  \_\_\_\_\_

10  $0.1456 =$  \_\_\_\_\_

11  $56,325.2 =$  \_\_\_\_\_

12  $9,214.3 =$  \_\_\_\_\_

Write the numbers in standard form.

13  $7.65 \times 10^3 =$  \_\_\_\_\_

14  $5.21 \times 10^{-1} =$  \_\_\_\_\_

15  $7.528 \times 10^2 =$  \_\_\_\_\_

16  $2.169 \times 10^{-4} =$  \_\_\_\_\_

17  $2.7345 \times 10^1 =$  \_\_\_\_\_

18  $4.6 \times 10^{-5} =$  \_\_\_\_\_

19  $8.752 \times 10^5 =$  \_\_\_\_\_

20  $5.0 \times 10^{-3} =$  \_\_\_\_\_

21  $8.0 \times 10^7 =$  \_\_\_\_\_

22  $5.639 \times 10^{-2} =$  \_\_\_\_\_

23  $5.3725 \times 10^4 =$  \_\_\_\_\_

24  $1.3 \times 10^{-6} =$  \_\_\_\_\_



# Scientific Notation—Skills Practice

Name: \_\_\_\_\_

Write the numbers in scientific notation.

Form B

1  $6,500 =$  \_\_\_\_\_

2  $0.0354 =$  \_\_\_\_\_

3  $69 =$  \_\_\_\_\_

4  $0.007257 =$  \_\_\_\_\_

5  $820 =$  \_\_\_\_\_

6  $0.000053 =$  \_\_\_\_\_

7  $0.002 =$  \_\_\_\_\_

8  $37.85 =$  \_\_\_\_\_

9  $400.75 =$  \_\_\_\_\_

10  $0.2531 =$  \_\_\_\_\_

11  $76,213.8 =$  \_\_\_\_\_

12  $1,876.4 =$  \_\_\_\_\_

Write the numbers in standard form.

13  $8.72 \times 10^3 =$  \_\_\_\_\_

14  $3.79 \times 10^{-1} =$  \_\_\_\_\_

15  $3.628 \times 10^2 =$  \_\_\_\_\_

16  $9.786 \times 10^{-4} =$  \_\_\_\_\_

17  $1.4278 \times 10^1 =$  \_\_\_\_\_

18  $3.4 \times 10^{-5} =$  \_\_\_\_\_

19  $6.251 \times 10^5 =$  \_\_\_\_\_

20  $4.0 \times 10^{-3} =$  \_\_\_\_\_

21  $9.0 \times 10^7 =$  \_\_\_\_\_

22  $6.213 \times 10^{-2} =$  \_\_\_\_\_

23  $4.1723 \times 10^4 =$  \_\_\_\_\_

24  $4.6 \times 10^{-6} =$  \_\_\_\_\_



## Scientific Notation—Skills Practice

Name: \_\_\_\_\_

Perform operations with numbers written in scientific notation. Write your answers in standard form.

Form A

1  $(4.2 \times 10^4) \times (2 \times 10^3) =$  \_\_\_\_\_

2  $(2.8 \times 10^5) \div (7 \times 10^{-2}) =$  \_\_\_\_\_

3  $(3.9 \times 10^6) + (4.1 \times 10^7) =$  \_\_\_\_\_

4  $(5.05 \times 10^{-3}) \div (5.05 \times 10^{-2}) =$  \_\_\_\_\_

5  $(3.21 \times 10^{-3}) \cdot (4.6 \times 10^3) =$  \_\_\_\_\_

6  $(4.5 \times 10^4) + (1.1 \times 10^1) =$  \_\_\_\_\_

7  $(2.65 \times 10^3) - (1.21 \times 10^3) =$  \_\_\_\_\_

8  $(7.5 \times 10^{-2}) + (8.6 \times 10^2) =$  \_\_\_\_\_

9  $(6.21 \times 10^{-2}) - (4.32 \times 10^{-4}) =$  \_\_\_\_\_

10  $(8.6 \times 10^2) + (9.4 \times 10^2) =$  \_\_\_\_\_

11  $(2.6 \times 10^5) \cdot (3.8 \times 10^{-3}) =$  \_\_\_\_\_

12  $(1.7 \times 10^{-1}) + (2.59 \times 10^{-2}) =$  \_\_\_\_\_

13  $\frac{4.62 \times 10^6}{2.2 \times 10^3} =$  \_\_\_\_\_

14  $(4.25 \times 10^5) \cdot (3.5 \times 10^{-5}) =$  \_\_\_\_\_

## Scientific Notation—Skills Practice

Name: \_\_\_\_\_

Perform operations with numbers written in scientific notation. Write your answers in standard form.

Form B

1  $(3.1 \times 10^4) \times (3 \times 10^3) =$  \_\_\_\_\_

2  $(3.6 \times 10^5) \div (4 \times 10^{-2}) =$  \_\_\_\_\_

3  $(2.7 \times 10^6) + (5.1 \times 10^7) =$  \_\_\_\_\_

4  $(6.39 \times 10^{-2}) \div (3 \times 10^{-3}) =$  \_\_\_\_\_

5  $(4.78 \times 10^{-3}) \times (2.1 \times 10^3) =$  \_\_\_\_\_

6  $(5.84 \times 10^4) + (6.2 \times 10^1) =$  \_\_\_\_\_

7  $(3.85 \times 10^3) - (1.41 \times 10^3) =$  \_\_\_\_\_

8  $(3.5 \times 10^{-2}) + (7.9 \times 10^2) =$  \_\_\_\_\_

9  $(5.31 \times 10^{-2}) - (2.34 \times 10^{-4}) =$  \_\_\_\_\_

10  $(7.2 \times 10^2) + (8.7 \times 10^2) =$  \_\_\_\_\_

11  $(4.6 \times 10^5) \times (2.8 \times 10^{-3}) =$  \_\_\_\_\_

12  $(1.9 \times 10^{-1}) + (3.69 \times 10^{-2}) =$  \_\_\_\_\_

13  $\frac{1.725 \times 10^6}{7.5 \times 10^3} =$  \_\_\_\_\_

14  $(4.87 \times 10^6) \times (4.3 \times 10^{-5}) =$  \_\_\_\_\_



## Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form A

1  $-3x + 8 - 5x = 21 - 8x$

2  $-2y - 7 + 5y = 13 - 2y$

3  $12 - 8z = -20 - 4z$

4  $7 + 2f = 9 + 4f$

5  $6 + 3m - 4 = -5 + 3m + 7$

6  $d + 6 + 2d = 4d + 9$

7  $4p - 4 = 3p - 3$

8  $4c + 12 = c - 3$

9  $7d - 8 = 3d - 8$

10  $-9n - 8 = -10n - 7$

11  $6 + 8b = -6 + 2b$

12  $7g + 5 - 2g = 5 + 5g$

# Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form B

1  $-3x - 8 + 5x = 17 - 3x$

2  $-4a + 6 - 2a = 12 - 6a$

3  $14 - 7z = -22 - 3z$

4  $9 + 4g - 6 = -3 + 4g + 6$

5  $8 + 3d = 10 + 5d$

6  $5w - 5 = 4w - 4$

7  $c + 7 + 3c = 5c + 11$

8  $9 + 6p = -9 - 3p$

9  $5f + 14 = f - 6$

10  $9h - 7 = 4h - 7$

11  $6z + 3 - 3z = 3 + 3z$

12  $-9b - 10 = -10b - 9$



## Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Use the distributive property as needed to solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

Form A

1  $6x - 12 = 6(x - 2)$

2  $\frac{4}{5} - \frac{3}{10}m = \frac{1}{10}m - \frac{4}{5}$

3  $-15x - 4 + 6x = -4 - 9x$

4  $7(y - 6) = 7y + 42$

5  $4(p + 5) = 6p + 20$

6  $3m + 11 = \frac{1}{3}(9m + 33)$

7  $15y - 4 = 12y - 28$

8  $-8 + 2n + 14 = 4n - 16$

9  $-\frac{1}{2}(4a + 8) = -2a + 4$

10  $3(m - 4) = 6m - 15$

11  $8(2y + 5) = 9y + 12$

12  $2n + 14 = 3n + 5$

## Solutions to Linear Equations— Skills Practice

Name: \_\_\_\_\_

Use the distributive property as needed to solve and tell whether the equation has 1 solution, no solution, or infinitely many solutions.

**Form B**

1  $\frac{2}{3} - \frac{1}{6}m = \frac{1}{6}m - \frac{2}{3}$

2  $7x - 14 = 7(x - 2)$

3  $7(p + 4) = 9p + 28$

4  $-16x - 8 + 9x = -8 - 7x$

5  $4m + 11 = \frac{1}{8}(32m + 88)$

6  $8(y - 7) = 8y + 56$

7  $-9 + 4n + 18 = 7n - 24$

8  $14y - 6 = 11y - 27$

9  $5(m - 3) = 7m - 17$

10  $-\frac{1}{4}(8a + 20) = -2a + 5$

11  $7(4y + 5) = 19y + 8$

12  $-9n - 8 - 3n = 6n - 8$



## Systems of Equations—Skills Practice

Name: \_\_\_\_\_

Solve systems of equations using substitution.

Form A

$$\begin{aligned} 1 \quad & y = 4x \\ & 2y + 2.5x = 105 \end{aligned}$$

$$\begin{aligned} 2 \quad & x + 10 = -8y \\ & -8y + x = 6 \end{aligned}$$

$$\begin{aligned} 3 \quad & x = -6y \\ & 3x + 6y = -24 \end{aligned}$$

$$\begin{aligned} 4 \quad & x - 9 = 7y \\ & 7y + x = -19 \end{aligned}$$

$$\begin{aligned} 5 \quad & y = 7x \\ & -2x + y = 15 \end{aligned}$$

$$\begin{aligned} 6 \quad & x + 5 = -4y \\ & -4y + x = 43 \end{aligned}$$

$$\begin{aligned} 7 \quad & x - 1 = \frac{1}{2}y \\ & \frac{1}{2}y + x = 11 \end{aligned}$$

$$\begin{aligned} 8 \quad & y = \frac{1}{3}x \\ & -6x + 3y = 30 \end{aligned}$$

$$\begin{aligned} 9 \quad & x = 1.5y \\ & -8x - 2y = -84 \end{aligned}$$

$$\begin{aligned} 10 \quad & y = 0.5x \\ & 8y - 6x = -20 \end{aligned}$$



## Systems of Equations—Skills Practice

Name: \_\_\_\_\_

Solve systems of equations using substitution.

Form B

1  $x = 7y$   
 $3x + 2y = 23$

2  $x = 4y$   
 $0.5y + 2x = 85$

3  $x - 6 = 5y$   
 $5y + x = -24$

4  $x = 9y$   
 $5x + 3y = -48$

5  $y = \frac{1}{5}x$   
 $-7x + 5y = 60$

6  $x - 8 = \frac{1}{6}y$   
 $\frac{1}{6}y + x = 10$

7  $y = 3x$   
 $-2x + y = 5$

8  $x + 7 = -3y$   
 $-3y + x = 41$

9  $y = 1.5x$   
 $10y - 3x = 96$

10  $x + 7 = 8y$   
 $8y + x = 9$



## Systems of Equations—Skills Practice

Name: \_\_\_\_\_

Solve systems of equations using any method.

Form A

1  $3x - 4y = 7$   
 $3x - 4y = 9$

2  $10x - 15y = 30$   
 $2x - 4y = 4$

3  $y = 2x$   
 $4y + 3x = 55$

4  $6x + 2y = 20$   
 $3x + 2y = 8$

5  $14y - 7x = 21$   
 $x - 2y = -3$

6  $9x - 6y = 3$   
 $-9x + 4y = 7$

7  $7y + 8x = 15$   
 $3y + 8x = 11$

8  $7x - 6y = 4$   
 $-6y + 7x = 5$

9  $5x - 4y = 9$   
 $3x + 8y = -5$

10  $x + 4 = 6y$   
 $6y + x = 8$

# Systems of Equations—Skills Practice

Name: \_\_\_\_\_

Solve systems of equations using any method.

Form B

1  $20x - 10y = 50$   
 $10x - 15y = -5$

2  $2x - 6y = 8$   
 $2x - 6y = 3$

3  $y = 3x$   
 $5y + 5x = 40$

4  $7x + 4y = 30$   
 $3x + 4y = 6$

5  $8x - 4y = 4$   
 $-8x + 2y = 6$

6  $15y - 5x = 20$   
 $x - 3y = -4$

7  $8x - 4y = 3$   
 $-4y + 8x = 9$

8  $9y + 6x = 15$   
 $2y + 6x = 8$

9  $10x + 4y = 8$   
 $5x + 8y = 16$

10  $x = -2y$   
 $3y + 5x = -21$



## Systems of Equations—Skills Practice

Name: \_\_\_\_\_

Solve systems of equations involving fractions and decimals.

Form A

1  $x = 0.5y$   
 $6x + 2y = 20$

2  $2x + 3y = 5$   
 $0.25x + 0.25y = 0.5$

3  $\frac{3}{5}x + \frac{7}{10}y = 20$   
 $2x - 7y = -120$

4  $x = \frac{1}{4}y$   
 $12x - 4y = 8$

5  $4x + 5y = 42$   
 $\frac{2}{3}x - \frac{1}{6}y = 1$

6  $-8x - 7y = 3$   
 $\frac{4}{5}x + \frac{7}{10}y = \frac{3}{10}$

7  $\frac{1}{8}x + \frac{1}{4}y = 2$   
 $x + 2y = 16$

8  $x = \frac{1}{6}y$   
 $36x - 2y = 24$

9  $6x - 5y = 36$   
 $0.5x + 2.5y = 3$

10  $2.5x + 5y = 50$   
 $1.25x + 1.5y = 21$

# Systems of Equations—Skills Practice

Name: \_\_\_\_\_

Solve systems of equations involving fractions and decimals.

Form B

1  $x = -0.5y$   
 $8x + 6y = 12$

2  $-6x + 12y = 14$   
 $1.5x - 3y = -3.5$

3  $4x - 7y = 32$   
 $0.5x + 3.5y = 4$

4  $2x + 6y = 8$   
 $0.25x + 0.25y = 0.5$

5  $\frac{4}{5}x + \frac{3}{10}y = 13$   
 $2x - 3y = -80$

6  $y = \frac{1}{5}x$   
 $3x - 25y = 20$

7  $\frac{1}{5}x + \frac{1}{10}y = 3$   
 $2x + y = 30$

8  $4x + y = 12$   
 $\frac{1}{3}x - \frac{1}{6}y = -2$

9  $-6x - 3y = 5$   
 $\frac{3}{4}x + \frac{3}{8}y = \frac{5}{8}$

10  $2x + 5y = 24$   
 $\frac{1}{2}x - \frac{3}{4}y = -2$



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Find the slope of the line through two given points.

Form A

1  $(7, 7)$  and  $(9, 9)$

slope = \_\_\_\_\_

2  $(8, 11)$  and  $(5, 5)$

slope = \_\_\_\_\_

3  $(2, 5)$  and  $(5, 8)$

slope = \_\_\_\_\_

4  $(-2, -3)$  and  $(-1, -6)$

slope = \_\_\_\_\_

5  $(-1, -4)$  and  $(3, 12)$

slope = \_\_\_\_\_

6  $(0, 0)$  and  $(6, 5)$

slope = \_\_\_\_\_

7  $(5, 6)$  and  $(9, 8)$

slope = \_\_\_\_\_

8  $(-2, -13)$  and  $(-4, -3)$

slope = \_\_\_\_\_

9  $(5, 9)$  and  $(3, 11)$

slope = \_\_\_\_\_

10  $(-8, 17)$  and  $(-5, 19)$

slope = \_\_\_\_\_

11  $(\frac{1}{4}, 4)$  and  $(\frac{3}{4}, 5)$

slope = \_\_\_\_\_

12  $(6, 3)$  and  $(-6, 6)$

slope = \_\_\_\_\_

13  $(8, 5)$  and  $(4, -7)$

slope = \_\_\_\_\_

14  $(\frac{1}{8}, -2)$  and  $(\frac{5}{8}, -4)$

slope = \_\_\_\_\_

15  $(0, 4)$  and  $(-10, 0)$

slope = \_\_\_\_\_

16  $(3, 8)$  and  $(4, 6)$

slope = \_\_\_\_\_

17  $(4, 9)$  and  $(7, 9)$

slope = \_\_\_\_\_

18  $(-3, 0)$  and  $(0, 9)$

slope = \_\_\_\_\_

19  $(-2, 3)$  and  $(4, -2)$

slope = \_\_\_\_\_

20  $(1, 1)$  and  $(-3, 9)$

slope = \_\_\_\_\_

21  $(-\frac{1}{4}, \frac{1}{4})$  and  $(-2, 2)$

slope = \_\_\_\_\_

# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Find the slope of the line through two given points.

Form B

1 (7, 10) and (4, 4)

slope = \_\_\_\_\_

2 (6, 6) and (14, 14)

slope = \_\_\_\_\_

3 (-3, -4) and (-2, -7)

slope = \_\_\_\_\_

4 (0, 0) and (9, 4)

slope = \_\_\_\_\_

5 (-1, -10) and (4, 15)

slope = \_\_\_\_\_

6 (2, 4) and (4, 6)

slope = \_\_\_\_\_

7  $(\frac{1}{4}, -3)$  and  $(\frac{3}{4}, -5)$

slope = \_\_\_\_\_

8  $(-\frac{1}{5}, \frac{1}{5})$  and (-2, 2)

slope = \_\_\_\_\_

9 (2, 7) and (6, 9)

slope = \_\_\_\_\_

10 (-2, -5) and (-4, -11)

slope = \_\_\_\_\_

11 (-7, 16) and (-4, 18)

slope = \_\_\_\_\_

12 (9, 6) and (-9, 9)

slope = \_\_\_\_\_

13  $(\frac{1}{8}, 6)$  and  $(\frac{5}{8}, 7)$

slope = \_\_\_\_\_

14 (1, 1) and (-2, 7)

slope = \_\_\_\_\_

15 (-2, 0) and (0, -10)

slope = \_\_\_\_\_

16 (0, -6) and (-8, 0)

slope = \_\_\_\_\_

17 (4, 12) and (5, 10)

slope = \_\_\_\_\_

18 (6, 7) and (1, 12)

slope = \_\_\_\_\_

19 (9, 6) and (4, -9)

slope = \_\_\_\_\_

20 (2, -1) and (7, 2)

slope = \_\_\_\_\_

21 (6, 8) and (9, 8)

slope = \_\_\_\_\_



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

**Determine the rate of change and the initial value of the line through two given points.**

**Form A**

**1** (5, 14) and (3, 10)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**2** (9, 32) and (4, 17)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**3** (8, 5) and (4, 7)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**4** (4, 8) and (12, 10)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**5** (3, 13) and (6, 14)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**6** (0, 4) and (7, 4)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**7** (1, 6) and (6, 1)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**8** (3, 8) and (12, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**9** (4, 1) and (8, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**10** (1, 3) and (3, 9)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**11** (2, 8) and (4, 8)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**12** (5, 12) and (2, 6)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**Give the rate of change and the initial value from each description.**

**13** Yamini starts a savings account with \$12. She will put in an equal amount each week. After 6 weeks, she will have \$54.

Rate of change per week = \_\_\_\_\_

Initial value = \_\_\_\_\_

**14** Jordan has some music books. He will buy 9 new music books each year. He will have 52 music books in 5 years.

Rate of change per year = \_\_\_\_\_

Initial value = \_\_\_\_\_



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

**Determine the rate of change and the initial value of the line through two given points.**

**Form B**

**1** (1, 4) and (3, 12)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**2** (5, 18) and (2, 9)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**3** (5, 1) and (10, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**4** (0, 5) and (8, 5)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**5** (1, 6) and (6, 16)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**6** (8, 30) and (5, 21)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**7** (1, 3) and (3, 1)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**8** (4, 7) and (12, 9)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**9** (3, 11) and (5, 11)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**10** (8, 4) and (4, 6)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**11** (6, 16) and (9, 17)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**12** (6, 8) and (15, 2)

Rate of change = \_\_\_\_\_

Initial value = \_\_\_\_\_

**Give the rate of change and the initial value from each description.**

**13** Kahn starts a savings account with \$14. He will put in an equal amount each week. After 7 weeks, he will have \$56.

Rate of change per week = \_\_\_\_\_

Initial value = \_\_\_\_\_

**14** Addison has some puzzle books. She will buy 7 new puzzle of books each year. She will have 43 puzzle books in 5 years.

Rate of change per year = \_\_\_\_\_

Initial value = \_\_\_\_\_



# Linear Functions—Skills Practice

Name: \_\_\_\_\_

Identify another point on the line given one point and the slope.

Form A

- |  |   |   |
|--|---|---|
| <b>1</b> $(-4, 0)$ and slope = $-2$            | <b>2</b> $(-5, 2)$ and slope = $-1$           | <b>3</b> $(4, 5)$ and slope = $0$             |
| <b>4</b> $(-3, -2)$ and slope = $5$            | <b>5</b> $(5, 6)$ and slope = $1$             | <b>6</b> $(0, 0)$ and slope = $3$             |
| <b>7</b> $(-1, -1)$ and slope = $-\frac{1}{2}$ | <b>8</b> $(1, 1)$ and slope = $-4$            | <b>9</b> $(-2, -2)$ and slope = $\frac{1}{4}$ |
| <b>10</b> $(0, -2)$ and slope = $-5$           | <b>11</b> $(1, 2)$ and slope = $-\frac{1}{3}$ | <b>12</b> $(3, -6)$ and slope = $4$           |
| <b>13</b> $(2, -3)$ and slope = $0$            | <b>14</b> $(4, 4)$ and slope = $-3$           | <b>15</b> $(3, 5)$ and slope = $-\frac{3}{5}$ |
| <b>16</b> $(2, 7)$ and slope = $1$             | <b>17</b> $(3, -3)$ and slope = $-6$          | <b>18</b> $(2, 2)$ and slope = $2$            |
| <b>19</b> $(-2, 1)$ and slope = $\frac{1}{6}$  | <b>20</b> $(4, 2)$ and slope = $-2$           | <b>21</b> $(0, 0)$ and slope = $\frac{2}{3}$  |
| <b>22</b> $(2, 4)$ and slope = $-1$            | <b>23</b> $(1, -1)$ and slope = $3$           | <b>24</b> $(-1, 1)$ and slope = $8$           |

## Linear Functions—Skills Practice

Name: \_\_\_\_\_

Identify another point on the line given one point and the slope.

Form B

1 (6, 7) and slope = 0

2 (-4, -5) and slope = 5

3 (-4, 3) and slope = -1

4 (-6, 0) and slope = -2

5 (3, 11) and slope = 1

6 (0, 0) and slope =  $\frac{1}{4}$

7 (-1, -1) and slope =  $-\frac{3}{5}$

8 (1, 2) and slope =  $-\frac{1}{2}$

9 (0, -3) and slope = -5

10 (4, -8) and slope = 3

11 (4, -9) and slope = 0

12 (-3, 3) and slope =  $-\frac{1}{3}$

13 (5, 5) and slope = -2

14 (5, -5) and slope = -6

15 (8, 9) and slope = 1

16 (-2, 3) and slope =  $\frac{2}{3}$

17 (3, 4) and slope = -4

18 (-3, 1) and slope =  $\frac{1}{6}$

19 (1, 1) and slope = -3

20 (0, 0) and slope = 4

21 (-1, 1) and slope = 2

22 (8, 8) and slope = 8

23 (1, -1) and slope = -1

24 (6, 2) and slope = 3



