4-1 Opener - Reflections

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

1. Graph the image of each figure under the given reflection.

****Determine the coordinates of the image.

Square $LMNP$ in the line $x=-2$.

1. Determine the coordinates of $M(1, –3) $after a reflection in the line

$x = 2.$

1. Graph the transformation of the figure.
parallelogram $BCDE$ in the line $x = 1$

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4-1 Exit Slip - Reflections

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

1. ****Graph the image of each figure under the given reflection.

Determine the coordinates of the image.

$△QRS$ in the line $y = x $

1. Determine the coordinates of $N(2, 1) $after a reflection in the line $y = –3.$
2. Graph the transformation of the figure.
parallelogram *DEFG* in the line *y* = 2

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4-2 Opener – Translations

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

Determine whether a translation maps square $ABCD $onto square $A’B’C’D’$. If so, find the translation vector. If not, explain why.

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**STAGE ACTORS** A director is staging actors for an upcoming performance. In the first scene, three actors are positioned in a triangle, with actors at points *A, B,* and *C*. If the director wants the same grouping of actors on the other side of the stage for Scene 2, at what coordinates should each actor stand? Use the translation vector 〈–5, –4〉.

4-2 Exit Slip – Translations

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

Determine whether a translation maps parallelogram $RSTU $onto parallelogram $R’S’T’U’.$ If so, find the translation vector. If not, explain why.

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**MARCHING BAND** The high school band director is positioning the marching band in preparation for an upcoming football game halftime show.The band’s first move is a group march from one corner of the field to the opposite corner. The corners of the band’s formation are represented by points *J, K, L,* and *M.* What is the translation vector representing the band’s movement to points *J’, K’, L’,* and *M’*?

4-3 Opener – Rotations

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

1. Triangle $ABC$ has vertices $A(–3, 1), B(–2, 3)$ and $C(–1, 1).$ Graph $∆ABC$ and its image after a rotation of $90°$ counterclockwise about $(0, –1).$
2.  **BOTANICAL GARDENS** The chief botanist for the regional botanical gardens wants
to relocate three dogwood trees so that they will get better sunlight. The locations
of the three trees on a coordinate plane are represented by the points *L*, *M*, and *N*.
What will the new coordinates of each tree be if rotated 270° counterclockwise about
the point (–2, –1)?

4-3 Exit Slip – Rotations

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

1. Quadrilateral $ABCD$ has vertices $A(–3, 2), B(–4, 0), C(–3, –2),$ and $D(–1, –1).$

Graph quadrilateral $ABCD$ and its image after a rotation of $180°$ about $(0, 1).$

1. **NEW HOME** Plans for a new home do not take advantage of the view of the valley below. The owners want to rotate the house before it is built so that the valley can be seen from the new porch. The corners of the proposed house are represented by points *A, B, C,* and *D.* If they rotate the house 270° clockwise about the point (–1, 2), what will be the coordinates of the new house location?



4-4 Opener – Compositions of Transformations

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

1) Graph each figure with the given vertices and its image after the indicated glide reflection.

 ∆*ABC*: *A*(1, –1), *B*(2, –3), *C*(1, –3)

Translation: along 〈1, 0〉

Reflection: in *y* = *x*

AB: *A*(–2, 4), *B*(0, 2)

Translation: along 〈2, –4〉

Reflection: in *y-*axis is



4-4 Exit Slip – Compositions of Transformations

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

1. Graph each figure with the given vertices and its image after the indicated glide reflection.

∆*TUV*: *T*(–3, 3), *U*(0, 1), *V*(–1, 0)

Translation: along 〈2, 1〉

Reflection: in *x-*axis

XY: *X*(–4, 3), *Y*(–2, 1)

Translation: along 〈1, 0〉

Rotation: 90° clockwise about origin



4-5 Opener – Tessellations

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

1. Determine whether the pattern is a tessellation.

If so, describe it as uniform, not uniform, regular, not regular, or semiregular.



1. Determine whether a tessellation can be created from each figure. If so, describe the transformation(s) that can be used to create the tessellation and draw a picture to support your reasoning.

a right trapezoid

4-5 Exit Slip – Tessellations

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

1. Determine whether the pattern is a tessellation.

If so, describe it as uniform, not uniform, regular, not regular, or semiregular.



1. Determine whether a tessellation can be created from each figure. If so, describe the transformation(s) that can be used to create the tessellation and draw a picture to support your reasoning.

a right triangle

 4-6 Opener – Symmetry

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

1. ****Determine whether each figure has a line of symmetry. If so, draw the lines of symmetry and state how many lines of symmetry it has.

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1. Determine whether each of the designs has rotational symmetry.



 4-6 Exit Slip – Symmetry

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

1. Determine whether each figure has a line of symmetry. If so, draw the lines of symmetry and state how many lines of symmetry it has.



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1. Determine whether the design has rotational symmetry.



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