

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

## *§2.2 Angle Relationships*

Today we will learn how to calculate angle measures using characteristics of complementary and supplementary angles and perpendicular lines.

### **Definitions:**

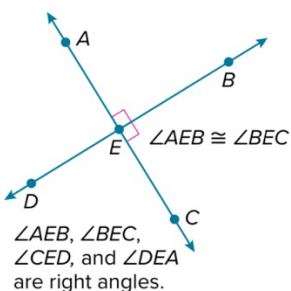
Complementary angles-

Supplementary angles-

**Example 2.2.1:** Find the measure of two complementary angles if the measure of the larger angle is five more than four times the measure of the smaller angle.

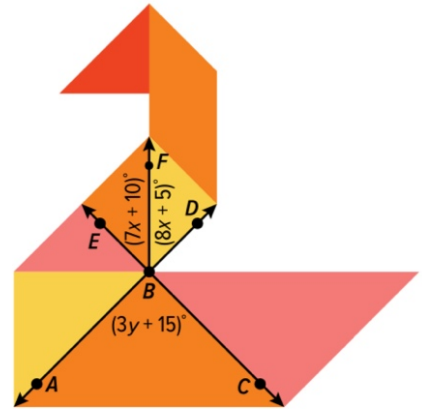
**Example 2.2.2:** The difference between the measures of two supplementary angles is 18. The measure of the smaller angle is \_\_\_\_\_ and the measure of the larger angle is \_\_\_\_\_.

New symbol " $\perp$ " means perpendicular ex.  $\overline{AC} \perp \overline{DB}$



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**Activity 2.2.3: TANGRAMS** The tangram is a puzzle consisting of seven flat shapes called tans which are put together to form shapes. Find the values of  $x$  and  $y$  such that  $AD$  and  $AC$  are perpendicular.



**Example 2.2.4:** Determine whether each statement can be assumed. Explain.

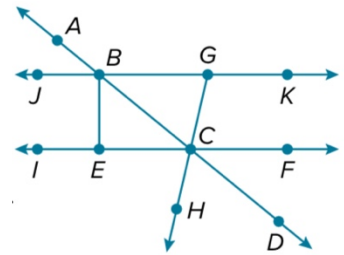
Ⓐ  $\angle EBC$  and  $\angle GBC$  are complementary angles.

Ⓑ  $\angle BGC$  and  $\angle KGC$  form a linear pair.

Ⓒ  $\angle ABJ$  and  $\angle CBG$  are vertical angles.

Ⓓ  $\angle BCG$  and  $\angle DCF$  are congruent.

Ⓔ  $\overline{BE}$  and  $\overleftrightarrow{IF}$  are perpendicular.



**Activity 2.2.5:** Which statement(s) cannot be assumed from the figure?

Ⓐ  $\angle KHJ$  and  $\angle GHM$  are complementary.

Ⓑ  $\angle GHK$  and  $\angle JHK$  are a linear pair.

Ⓒ  $\overline{HL}$  is perpendicular to  $\overline{HJ}$ .

Ⓓ  $\angle GHM$  and  $\angle MHK$  are adjacent angles.

Ⓔ  $\overline{HL}$  is perpendicular to  $\overline{HM}$ .

