

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

## The Midpoint Formula and Segment Addition Postulate

**Algebra** Use the figure at the right for Exercises 1 and 2.



1. Given:  $ST = 3x + 3$  and  $TU = 2x + 9$ .

a. What is the value of  $ST$ ?

b. What is the value of  $TU$ ?

2. Given:  $ST = x + 3$  and  $TU = 4x - 6$ .

a. What is the value of  $ST$ ?

b. What is the value of  $SU$ ?

3. **Algebra** On a number line, suppose point  $E$  has a coordinate of 3,  $EG = 6$ , and  $EX = 12$ . Is point  $G$  the midpoint of  $\overline{EX}$ ? What are possible coordinates for  $G$  and  $X$ ?

Find the coordinates of the midpoint of  $\overline{AB}$ .

4.  $A(6, 7)$ ,  $B(4, 3)$

5.  $A(-1, 5)$ ,  $B(2, -3)$

6.  $A(14, -2)$ ,  $B(7, -8)$

7.  $A(0, 0)$ ,  $B(-5, 12)$

The coordinates of point  $Y$  are given. The midpoint of  $\overline{XY}$  is  $(3, -5)$ . Find the coordinates of point  $X$ .

8.  $Y(0, 2)$

9.  $Y(-10, 5)$