

Name \_\_\_\_\_

## Algebra I in Geometry

### Segment Addition and Segment Bisector

1. R is between Q and T.

$$RQ = 3x + 7, RT = 2x + 3, \text{ and } QT = 60$$

$$x = \underline{\hspace{2cm}}$$

$$RQ = \underline{\hspace{2cm}}$$

$$RT = \underline{\hspace{2cm}}$$

2. M is between A and B.

$$AM = 5x + 7, MB = 4x - 4, \text{ and } AB = 84$$

$$x = \underline{\hspace{2cm}}$$

$$AM = \underline{\hspace{2cm}}$$

$$MB = \underline{\hspace{2cm}}$$

3. T is the midpoint of  $\overline{XY}$ .

$$TX = 8x + 3, TY = 19$$

$$x = \underline{\hspace{2cm}}$$

4. T is the midpoint of  $\overline{XY}$

$$TX = 3y + 5, XY = 52$$

$$y = \underline{\hspace{2cm}}$$

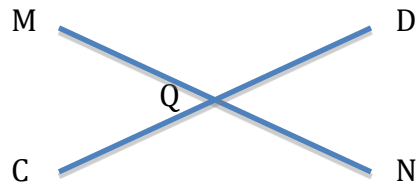
5.  $\overline{CD}$  bisects  $\overline{MN}$  at point Q.

$$MQ = 3x + 3$$

$$MN = 8x - 4$$

$$x = \underline{\hspace{2cm}}$$

$$QN = \underline{\hspace{2cm}}$$



6.  $\overline{WU}$  bisects  $\overline{XY}$ .

$$XA = 9x - 12$$

$$AY = 6x$$

$$WA = 3x - 9$$

$$AU = 12x + 5$$

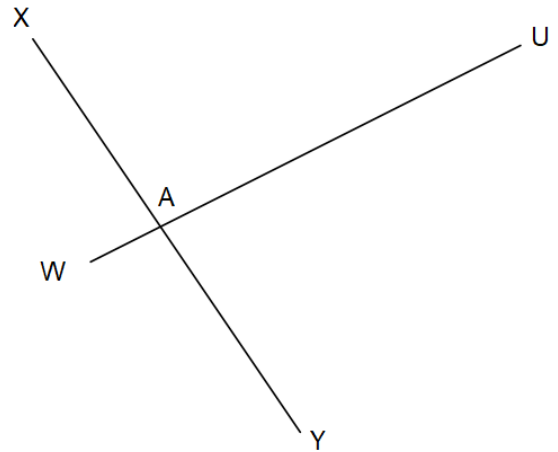
$$x = \underline{\hspace{2cm}}$$

$$XA = \underline{\hspace{2cm}}$$

$$AY = \underline{\hspace{2cm}}$$

$$WA = \underline{\hspace{2cm}}$$

$$AU = \underline{\hspace{2cm}}$$



Solve each system of equations.

7.  $4x + 5y = -17$

$$5x - 3y = 25$$

8.  $3x - 4y = 25$

$$9x + 8y = 85$$

9.  $y = 4x + 54$

$$5x + 2y = -22$$

10.  $x + 2 = 3y$

$$8x - 7y = 35$$

# Algebra I in Geometry Answers

## Segment Addition and Segment Bisector

1. R is between Q and T.

$$RQ = 3x + 7, RT = 2x + 3, \text{ and } QT = 60$$

$$x = 10$$

$$RQ = 37$$

$$RT = 23$$

2. M is between A and B.

$$AM = 5x + 7, MB = 4x - 4, \text{ and } AB = 84$$

$$x = 9$$

$$AM = 52$$

$$MB = 32$$

3. T is the midpoint of  $\overline{XY}$ .

$$TX = 8x + 3, TY = 19$$

$$x = 2$$

4. T is the midpoint of  $\overline{XY}$

$$TX = 3y + 5, XY = 52$$

$$y = 7$$

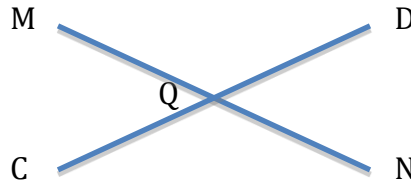
5.  $\overline{CD}$  bisects  $\overline{MN}$  at point Q.

$$MQ = 3x + 3$$

$$MN = 8x - 4$$

$$x = 5$$

$$QN = 18$$



6.  $\overline{WU}$  bisects  $\overline{XY}$ .

$$XA = 9x - 12$$

$$AY = 6x$$

$$WA = 3x - 9$$

$$AU = 12x + 5$$

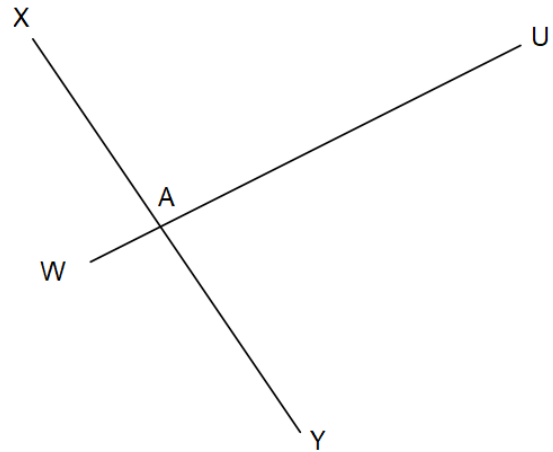
$$x = 4$$

$$XA = 24$$

$$AY = 24$$

$$WA = 3$$

$$AU = 53$$



Solve each system of equations.

7.  $4x + 5y = -17$

$$5x - 3y = 25$$

$$(2, -5)$$

8.  $3x - 4y = 25$

$$9x + 8y = 85$$

$$(9, 0.5)$$

9.  $y = 4x + 54$

$$5x + 2y = -22$$

$$(-10, 14)$$

10.  $x + 2 = 3y$

$$8x - 7y = 35$$

$$(7, 3)$$