Geometry
Unit 1 Geometry Essentials
1.2a Lengths of Segments
   (using coordinates and segment addition)
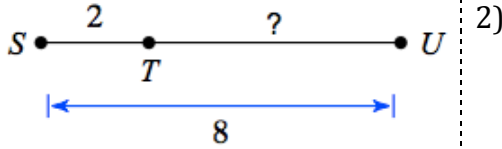
Mathematician: _____

Period:_____

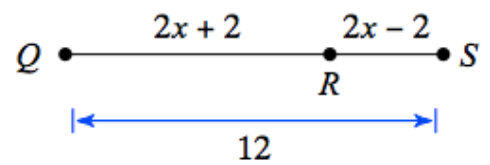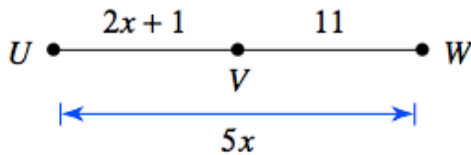## LEVEL: EMERGING

Directions: Solve for x.

1)

$$S \overset{2}{\bullet} \underset{T}{\bullet} \overset{?}{\quad} \bullet U$$

8

2)

$$Q \bullet \overset{2x+2}{\quad} \underset{R}{\bullet} \overset{2x-2}{\quad} \bullet S$$

12

3)

$$U \bullet \overset{2x+1}{\quad} \underset{V}{\bullet} \overset{11}{\quad} \bullet W$$

$5x$

4)

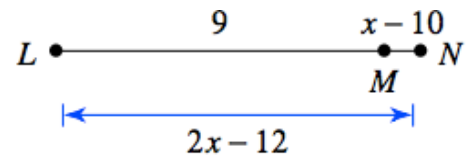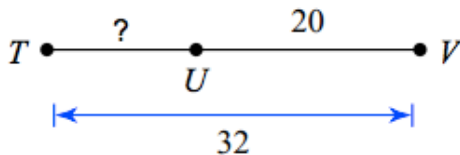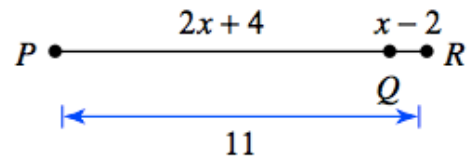$$L \bullet \overset{9}{\quad} \underset{M}{\bullet} \overset{x-10}{\quad} \bullet N$$

$2x-12$

LEVEL: PROFICIENT

Directions: Find the length of the given segment given the following.
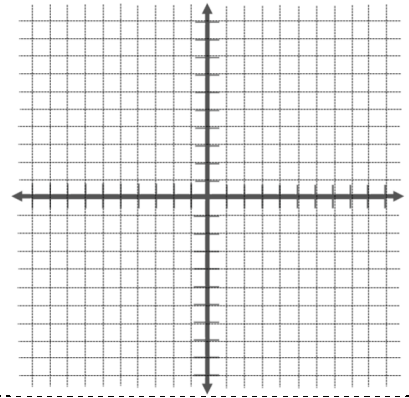
5) a) Find $\overline{TU}$.

$$T \bullet \overset{?}{\quad} \underset{U}{\bullet} \overset{20}{\quad} \bullet V$$

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b) Find the ratio of $\overline{TU}$ to $\overline{TV}$.

6) a) Find $\overline{PQ}$.

$$P \bullet \overset{2x+4}{\quad} \underset{Q}{\bullet} \overset{x-2}{\quad} \bullet R$$

11

b) Find the ratio of $\overline{PQ}$ to $\overline{QR}$.

7) The endpoints of $\overline{AB}$ are at (9,4) and (9,9). One of the endpoints of $\overline{CD}$ is at (-7,1). If $\overline{AB} \cong \overline{CD}$, and $\overline{CD}$ is in entirely in the second quadrant, what is the other endpoint of $\overline{CD}$?
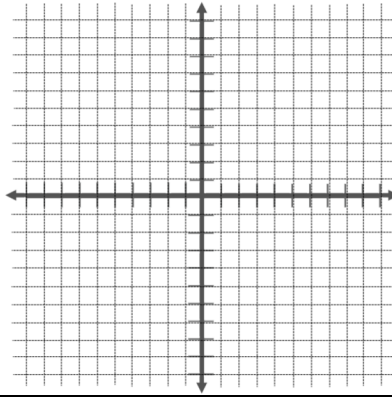
(Draw the two line segments on the graph to the right)

_____

8) a) The endpoints of $\overline{MN}$ are at (7,5) and (7,-2). The endpoints of $\overline{GH}$ are at (6,-10) and (1, -10).

(Draw the two line segments on the graph to the right.)

b) Is $\overline{MN} \cong \overline{GH}$? Explain.

LEVEL: MASTERY

Directions: Points A, B and C are collinear, with B in between A and C. Use the following information to solve for the length of the indicated line segment.

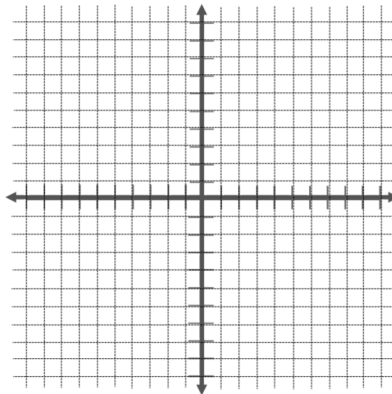9) $\overline{AC} = 9x$, $\overline{BC} = 3x + 8$, and $\overline{AB} = 2x$. Find the length of $\overline{BC}$.

10) $\overline{AB} = x + 7$, $\overline{BC} = x + 5$ and $\overline{AC} = 7x + 2$. Find the length of $\overline{AC}$.

$\overline{BC} =$ _____

$\overline{AC} =$ _____

11) a) The endpoints of $\overline{AB}$ are at (2,1) and (2,6). One of the endpoints of $\overline{CD}$ is at (-10,3). If $\overline{AB} \cong \overline{CD}$, and $\overline{CD}$ is in the second quadrant, and is parallel to the x-axis, what is the other endpoint of $\overline{CD}$? _____

Draw the two line segments on the graph to the right.

b) Draw a line segment $\overline{EF}$ on the graph such that $\overline{AB} \cong \overline{CD} \cong \overline{EF}$. What are the ordered pairs of your endpoints?

_____ and _____

Directions:

Unit 1.2a Worksheet Answers

1. $x = 6$
2. $x = 3$
3. $x = 4$
4. $x = 11$
5.
   a. $\overline{TU} = 12$
   b. $\frac{3}{8}$
6.
   a. $\overline{PQ} = 10$
   b. $\frac{10}{1}$
7. $(-2,2)$ or $(-12,2)$
8.
   a. On graph
   b. No, they are not congruent. Explanations may vary.
9. $\overline{BC} = 14$
10. $\overline{AC} = 16$
11.
   a. (-5,3) OR (-15,3)
   b. Answers may vary