

Geometry

7.5 (day 2): Proportions and Similar Triangles

Name: _____

🎯 Students will be able to use the Midsegment theorem to find missing lengths of a triangle.

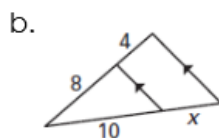
Warmup

Find the value of the variable.



$$\frac{x}{2} = \frac{3}{1}$$

$$6 = x$$

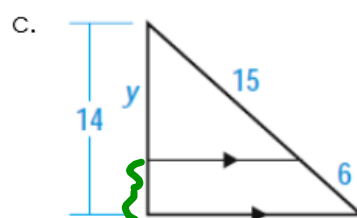


$$\frac{8}{4} = \frac{10}{x}$$

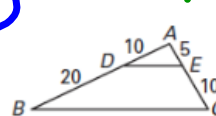
$$2 = \frac{10}{x}$$

$$2x = 10$$

$$x = 5$$



$$\frac{y}{14-y} = \frac{15}{6}$$



$$15(14-y) = 6y$$

$$210 - 15y = 6y$$

$$+15y + 15y$$

$$210 = 21y$$

$$\frac{210}{21} = \frac{21y}{21}$$

$$10 = y$$

Determine whether \overline{DE} is parallel to \overline{BC} . Explain.

$$\frac{20}{10} = \frac{10}{5}$$

$$5 \cdot 20 = 10 \cdot 10$$

$$100 = 100 \checkmark$$

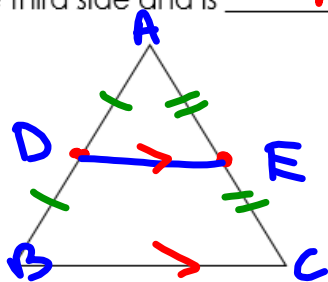
$$\overline{DE} \parallel \overline{BC}$$

A Midsegment of a triangle is:

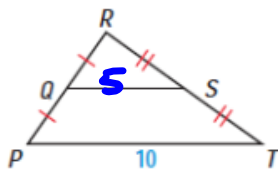
The segment connecting the Midpoints of 2 sides of a triangle.

The Midsegment Theorem:

The segment connecting the midpoints of two sides of a triangle is parallel to the third side and is half as long.

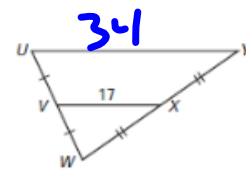


In $\triangle ABC$ if $\overline{AD} \cong \overline{DB}$
 $\&$ $\overline{AE} \cong \overline{EC}$ then $\overline{DE} \parallel \overline{BC}$
 and $\overline{DE} = \frac{1}{2} \overline{BC}$

Example 3:Midsegment = $\frac{1}{2}$ (3rd side)a. Find the length of \overline{QS} .

$$QS = \frac{1}{2}(10)$$

$$QS = 5$$

b. Find the length of \overline{UY} .

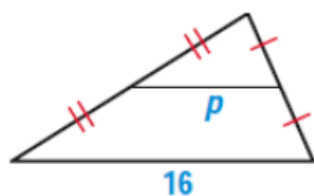
$$2 \cdot 17 = \frac{1}{2}(UY) \cdot 2$$

$$34 = UY$$

YOU TRY:

Find the value of the variable.

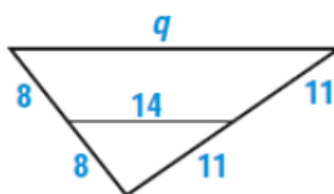
a.



$$p = 8$$

$$p = \frac{1}{2}(16)$$

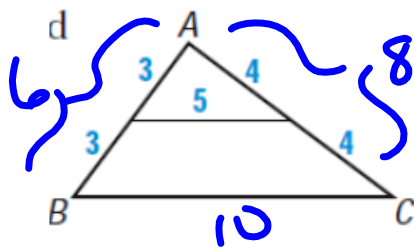
b.



$$2 \cdot 14 = \frac{1}{2} q \cdot 2$$

$$28 = q$$

c. Find the perimeter of $\triangle ABC$.



$$6 + 8 + 10 = \boxed{24}$$

Homework: 7.5 Day 2 Worksheet