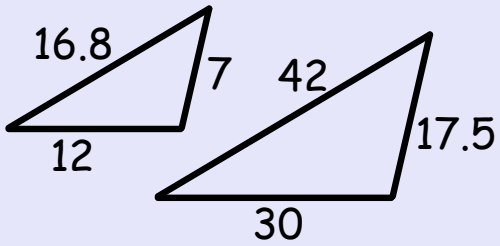
1/27/20 - Warm Up Problem

Determine if each pair of triangles is similar by AA, SSS, SAS, or if they are not similar.

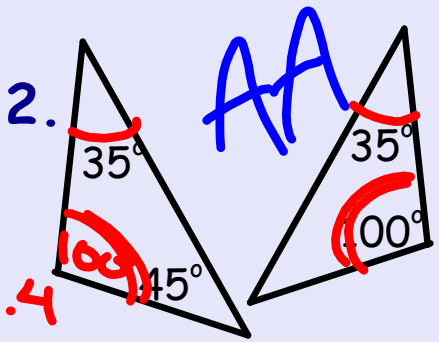
1.



SSS

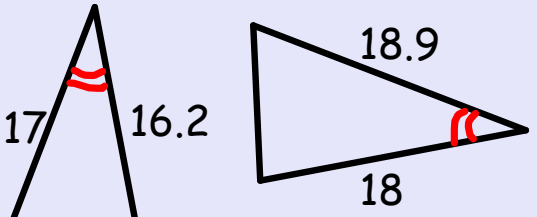
$\frac{16.8}{42}=.4$ $\frac{7}{17.5}=.4$ $\frac{12}{30}=.4$

2.



AA

3.



Not Similar

$\frac{17}{18.9}=.899$ $\frac{16.2}{18}=.9$

Section 7.5 - Proportions in Triangles

Goals: Use theorems about proportionality to find missing measures on triangles

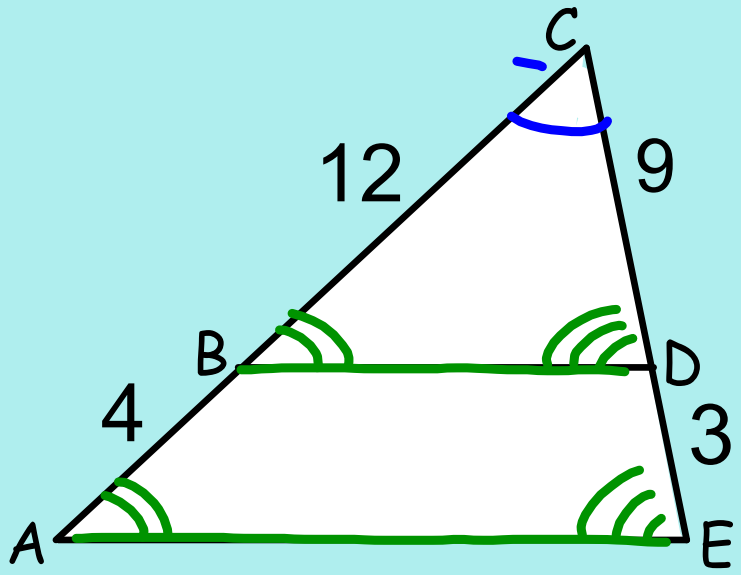
$\Delta BCD \sim \Delta ACE$ by SAS.

What is the scale factor?

$\frac{12}{16} = .75$ $\frac{9}{12} = .75$

Are segments BD and AE parallel?

Yes

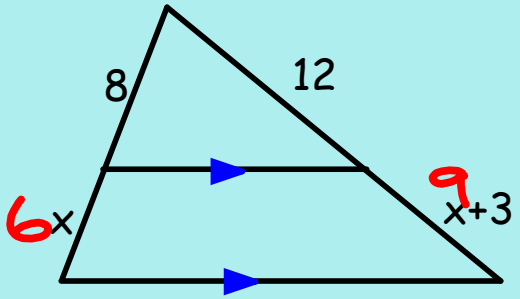


Do you notice anything about segments BC, AB, CD, and DE?

$\frac{12}{4} = 3$ $\frac{9}{3} = 3$

SIDE-SPLITTER THEOREM

If a line is parallel to one side of a triangle and intersects the other two sides, then it divides those sides proportionally.



$$\frac{8}{x} = \frac{12}{x+3}$$

$$8x + 24 = 12x$$

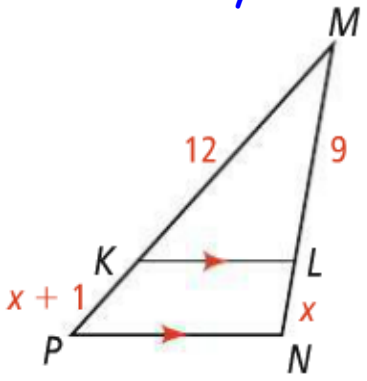
$$-8x \quad -8x$$

$$24 = 4x$$

$$\frac{24}{4} = \frac{4x}{4}$$

$$6 = x$$

Do this one in your notes.



$$\frac{x+1}{12} = \frac{x}{9}$$

$$9x + 9 = 12x$$

$$-9x \quad -9x$$

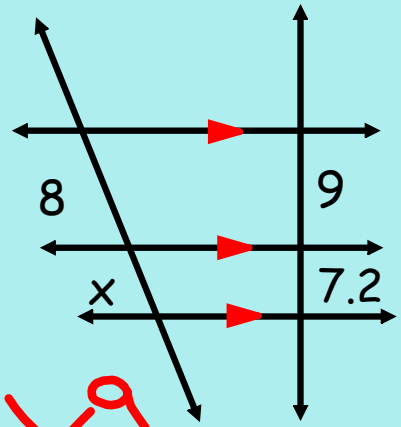
$$9 = 3x$$

$$\frac{9}{3} = \frac{3x}{3}$$

$$3 = x$$

COROLLARY TO THE SIDE-SPLITTER THEOREM

If three parallel lines intersect two transversals, then the segments intercepted on the transversals are proportional.

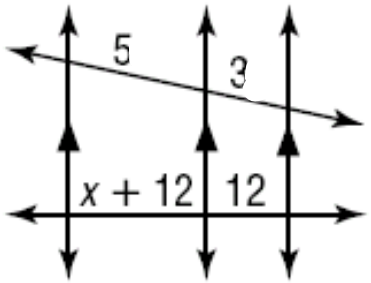


$\frac{8}{x} = \frac{9}{7.2}$

$9x = 57.6$

$x = 6.4$

Do this one in your notes.



$\frac{5}{x+12} = \frac{3}{12}$

$60 = 3x + 36$

$-36 \quad -36$

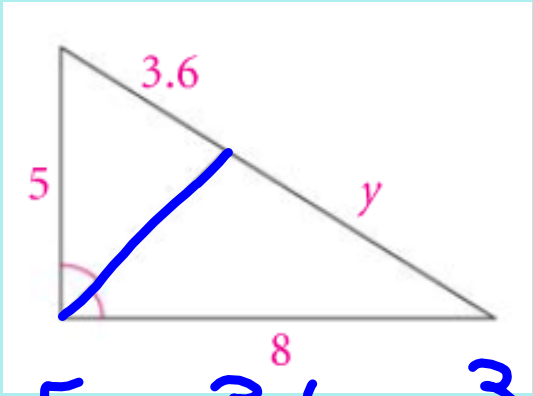
$24 = 3x$

$\frac{24}{3} = \frac{3x}{3}$

$8 = x$

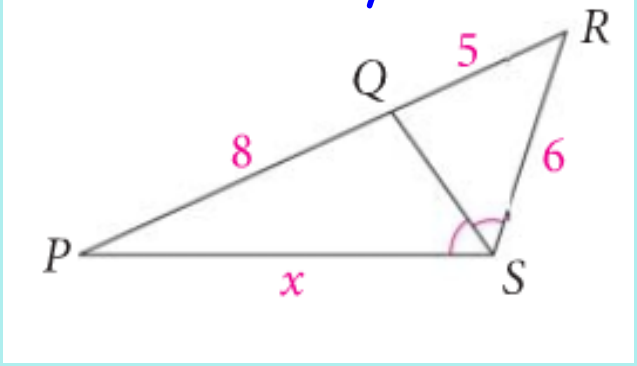
TRIANGLE-ANGLE-BISECTOR THEOREM

If a ray bisects an angle of a triangle, then it divides the opposite side into two segments that are proportional to the other two sides of the triangle.



$\frac{5}{8} = \frac{3.6}{y}$ $\frac{3.6}{5} = \frac{y}{8}$

Do this one in your notes.



$$\frac{8}{x} = \frac{5}{6}$$
$$48 = 5x$$
$$x = 9.6$$

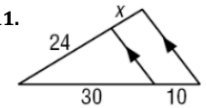
Assignment:

Concept 18 Worksheet
(back)

PROPORTIONS IN TRIANGLES

Find the value of the variable. Show your work.

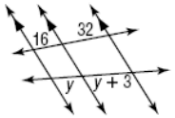
11.



$\frac{24}{30} = \frac{x}{10}$ X=8

$\frac{30x}{30} = \frac{240}{30}$

12.



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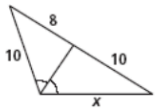

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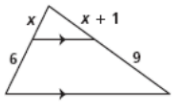

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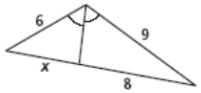

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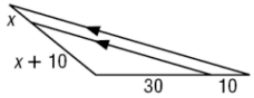

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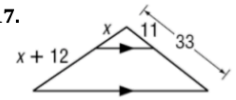

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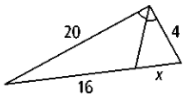

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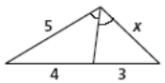

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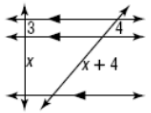

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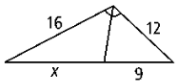

22.