

Unit 4 Review -

Name KEY

For problems 1 - 2, solve each proportion.

1. $\frac{a+1}{a-1} = \frac{6}{5}$

$$5(a+1) = 6(a-1)$$

$$\frac{5a+5 = 6a-6}{-5a+6 \quad -5a+6}$$

$$\boxed{11 = a}$$

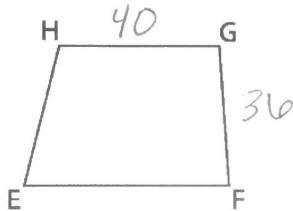
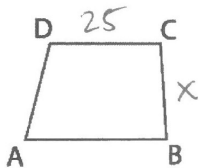
2. $\frac{2}{3x+1} = \frac{1}{x}$

$$2x = 3x + 1$$

$$\frac{-3x \quad -3x}{-1x = 1}$$

$$\frac{-1x = 1}{-1 \quad -1} \quad \boxed{x = -1}$$

3. $ABCD \sim EFGH$. If $GH = 40$, $FG = 36$, and $DC = 25$, find CB .



~~$\frac{25}{40} = \frac{x}{36}$~~

$$\frac{40x = 900}{40 \quad 40}$$

$$x = 22.5$$

4. The ratio of the measures of three sides of a triangle is 4 : 6 : 9, and its perimeter is 190 inches. Find the measure of the largest side.

$$4x + 6x + 9x = 190$$

$$19x = 190$$

$$\boxed{x = 10}$$

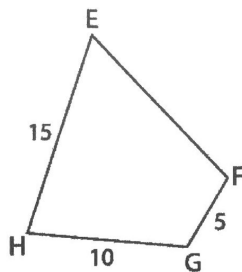
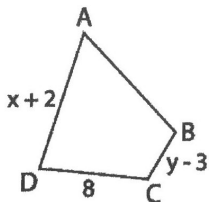
5. In a triangle, the ratio of the measures of the three angles is 2 : 5 : 8. Find the measure of the smallest angle.

$$2x + 5x + 8x = 180$$

$$15x = 180$$

$$\boxed{x = 12}$$

6. Quad $ABCD \sim$ Quad $EFGH$. Find the values of x and y .



~~$\frac{x+2}{15} = \frac{8}{5}$~~

$$10(x+2) = 120$$

$$10x + 20 = 120$$

$$10x = 100$$

$$\boxed{x = 10}$$

7. $ABCDE \sim FGHIJ$

a. Find the scale factor of $ABCDE$ to $FGHIJ$

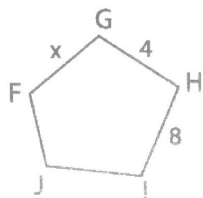
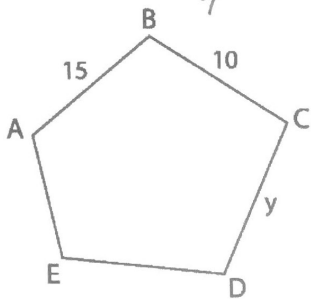
simplify
↓
 $\frac{10}{4} \Rightarrow \frac{5}{2}$

b. Find x $\frac{15}{x} = \frac{10}{4}$

$10x = 60$
 $x = 6$

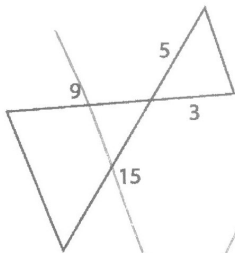
c. Find y $\frac{10}{4} = \frac{y}{8}$

$80 = 4y$
 $20 = y$

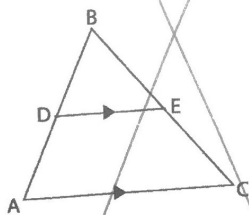


For problems 8 - 11, determine if the following triangles are similar. If so, state the theorem.

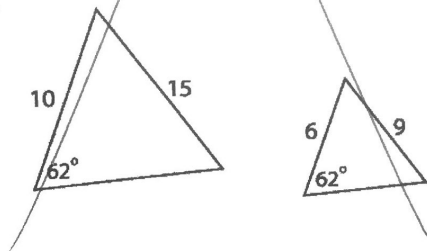
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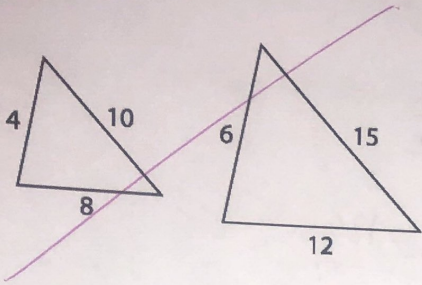
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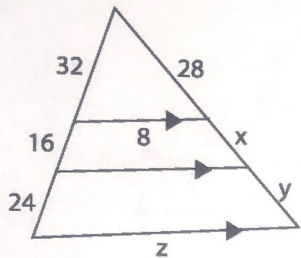
10.



11.



12. Find the values of x , y and z .



$$\frac{32}{28} = \frac{16}{x}$$

$$x = 14$$

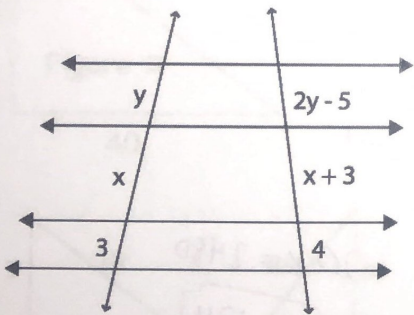
$$\frac{32}{28} = \frac{z}{8}$$

$$z = 9.14$$

$$\frac{32}{28} = \frac{24}{y}$$

$$y = 21$$

13. Find the values of x and y .



$$\frac{3}{4} = \frac{x}{x+3}$$

$$3(x+3) = 4x$$

$$3x + 9 = 4x$$

$$9 = x$$

$$\frac{3}{4} = \frac{y}{2y-5}$$

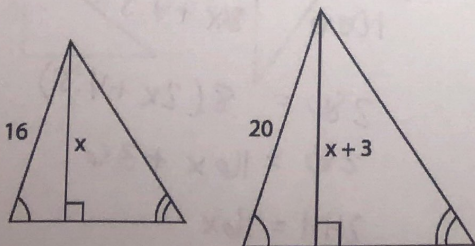
$$3(2y-5) = 4y$$

$$6y - 15 = 4y$$

$$2y = 15$$

$$y = 7.5$$

14. Find the value of x .



$$\frac{x}{16} = \frac{x+3}{20}$$

$$16(x+3) = 20x$$

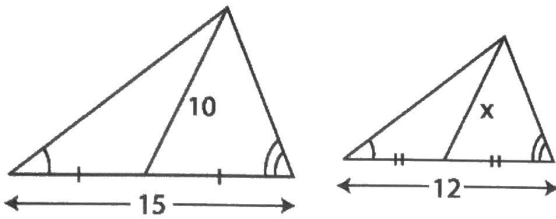
$$16x + 48 = 20x$$

$$48 = 4x$$

$$x = 12$$

15.

Find the value of x .

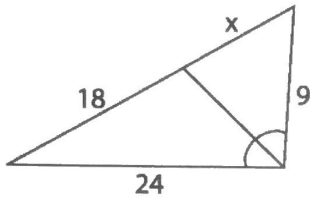


$$\frac{10}{15} = \frac{x}{12}$$

$$15x = 120$$

$$x = 8$$

16. Find the value of x .

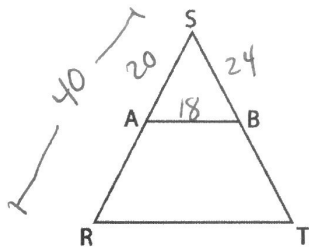


$$\frac{9}{24} = \frac{x}{18}$$

$$24x = 162$$

$$x = 6.75$$

17. AB is parallel to RT . If $AB = 18$, $SB = 24$, $AS = 20$, and $RS = 40$. Find the perimeter of $\triangle RTS$.



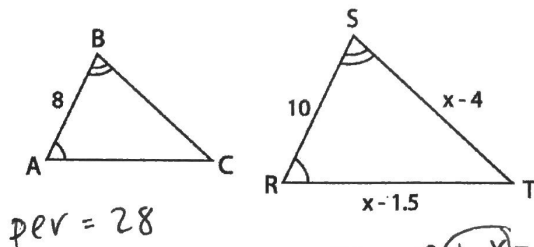
$$\frac{20}{40} = \frac{20 + 24 + 18}{\text{Perimeter } RTS}$$

$$\frac{20}{40} = \frac{62}{x}$$

$$20x = 2480$$

$$x = 124$$

18. The two triangles in the figure are similar. If the perimeter of $\triangle ABC$ is 28, find x .



$$\text{per} = 28$$

$$\begin{aligned} \text{per} &= 10 + (x - 4) + (x - 1.5) \\ &= 2x + 4.5 \end{aligned}$$

$$\frac{8}{10} = \frac{28}{2x + 4.5}$$

$$280 = 8(2x + 4.5)$$

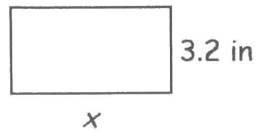
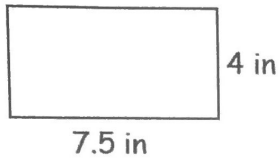
$$280 = 16x + 36$$

$$244 = 16x$$

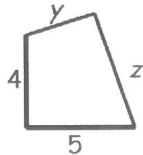
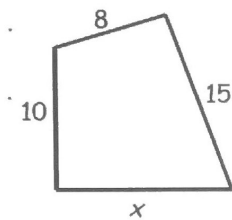
$$15.25 = x$$

19.

Find the indicated length for each pair of similar figures.



$$\frac{4}{3.2} = \frac{7.5}{x}$$



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

$$\frac{10}{4} = \frac{15}{z}$$

$$32 = 10y$$

$$60 = 10z$$

$$\frac{10}{4} = \frac{x}{5}$$

$$\boxed{3.2 = y}$$

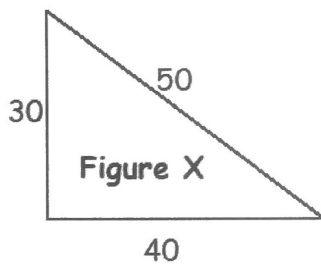
$$\boxed{6 = z}$$

$$50 = 4x$$

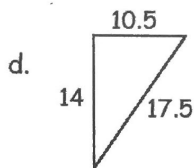
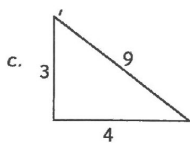
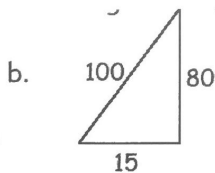
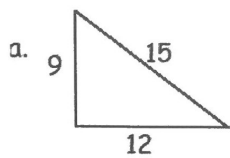
$$\boxed{12.5 = x}$$

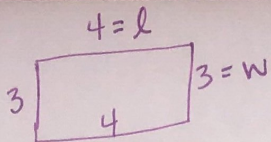
20.

Which of the following figures is similar to the figure X? There may be more than one.



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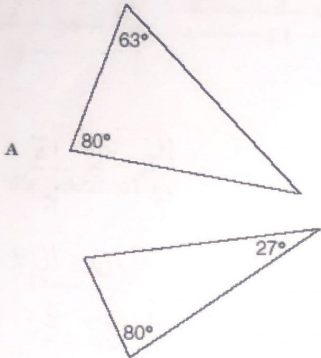
21. A rectangle has a length of 4 feet and a perimeter of 14 feet. What is the perimeter of a similar rectangle with a width of 9 feet?

$$\frac{3}{9} = \frac{14}{x}$$

$$3x = 126$$

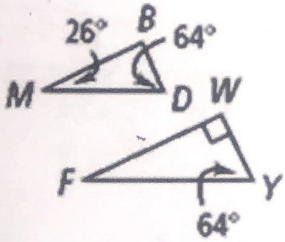
$$x = 42$$

22. Determine if the following is similar, if so state the postulate. If not, say why.



omit

b.



c.

