

Chapter 7 Review Problems

Complete each statement.

<p>1. If $\frac{x}{2} = \frac{y}{3}$, then $\frac{x+2}{2} = \frac{y+3}{3}$</p> <p>$\frac{x}{2} + \frac{2}{2} = \frac{y}{3} + \frac{3}{3}$</p>	<p>2. If $\frac{a}{b} = \frac{7}{3}$, then $\frac{a-b}{b} = \frac{4}{3}$</p> <p>$\frac{a}{b} - \frac{b}{b} = \frac{7}{3} - \frac{3}{3}$</p>
<p>3. If $\frac{a}{b} = \frac{c}{d}$, then $\frac{a-b}{b} = \frac{c-d}{d}$</p> <p>$\frac{a}{b} - \frac{b}{b} = \frac{c}{d} - \frac{d}{d}$</p>	<p>4. If $\frac{5}{3} = \frac{9+x}{x}$, then $\frac{2}{3} = \frac{9}{x}$</p> <p>$\frac{5}{3} - \frac{3}{3} = \frac{9+x}{x} - \frac{x}{x}$</p>
<p>5. If $\frac{5-x}{x} = \frac{3}{5}$, then $\frac{5}{x} = \frac{3}{5-x}$ OR</p> <p>$25 - 5x = 3x$ $25 = 8x$ $\frac{5}{x} = \frac{8}{5}$</p>	<p>6. If $\frac{x+y}{x} = \frac{9}{4}$, then $\frac{y}{x} = \frac{5}{4}$</p> <p>$\frac{x+y}{x} - \frac{x}{x} = \frac{9}{4} - \frac{4}{4}$</p>
<p>7. Solve for x. $\frac{x+1}{2x-2} = \frac{5}{6}$</p> <p>$6x+6 = 10x-10$ $16 = 4x$ $4 = x$</p>	<p>8. Solve for x. $\frac{x+1}{6} = \frac{2}{x+2}$</p> <p>$x^2 + 3x + 2 = 12$ $x^2 + 3x - 10 = 0$ $(x+5)(x-2) = 0$ $x = -5, 2$</p>

9. On a map, $\frac{1}{2}$ inch represents 2 miles. If the distance from a shopping mall to the high school is $1\frac{3}{4}$ inch on the map, what is the distance in miles?

$\frac{.5 \text{ in}}{2 \text{ miles}} = \frac{1.75 \text{ in}}{x}$ $.5x = 3.5$
 $x = 7 \text{ miles}$

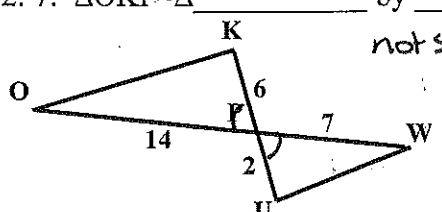
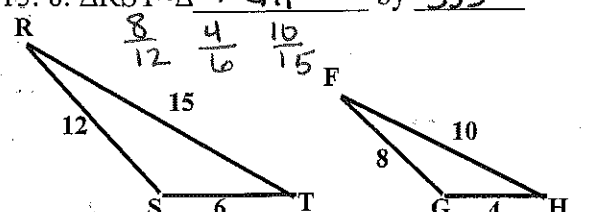
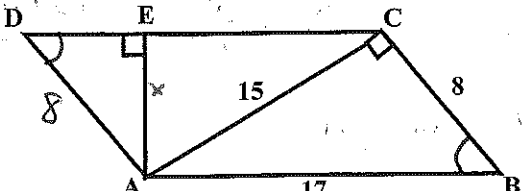
10. A person 5 ft 9 in. tall casts a 4 ft shadow. The same time of day a tree casts a 14 foot shadow. How tall is the tree?

$\frac{5.75 \text{ ft}}{4 \text{ ft}} = \frac{x}{14 \text{ ft}}$ $x = 20.125 \text{ ft.}$ $.125 \text{ ft} = \frac{1 \text{ ft}}{8}$
 OR 20 and 1.5 inches $y = 1.5 \text{ inches}$

11. A 4-in. by 6-in. drawing is enlarged to put on a poster that measures 20 in. by 24 in. What are the dimensions of the largest enlargement possible?

$5 \left(\begin{matrix} 4 \text{ by } 6 \\ 20 \quad 24 \end{matrix} \right) 4$ $16 \text{ in by } 24 \text{ in}$

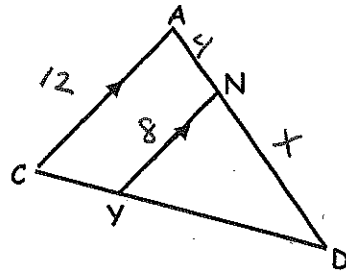
In problems 12-14, determine whether the two triangles shown are similar. If so, state why (AA, SSS, or SAS) and complete the similarity statement.

<p>12. 7. $\triangle OKP \sim \triangle$ _____ by _____</p> <p>not similar</p> 	<p>13. 8. $\triangle RST \sim \triangle$ FGH by SSS</p> 
<p>14. $\triangle ABC \sim \triangle ADE$ by AA. Also find EA.</p> <p>$\overline{AD} \cong \overline{CB}$, $\angle D \cong \angle B$</p> <p>$\frac{8}{17} = \frac{x}{15}$ $x = \frac{120}{17}$</p>	

15. If AN = 4, YN = 8, and AC = 12, find ND.

$$\frac{x}{8} = \frac{4+x}{12} \quad 12x = 32 + 8x$$

$$4x = 32 \quad x = 8 \quad ND = 8$$



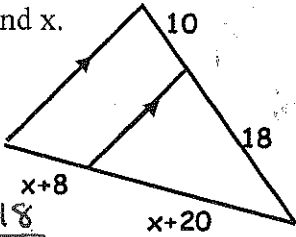
Use this figure for 15 and 16.

16. If $ND = \frac{5}{8}AD$, then $\frac{DY}{YC} = ?$

~~$$\frac{7.5}{12} = \frac{5}{8}$$~~

$$\frac{5}{8} = \frac{40}{24} = \frac{5}{3}$$

17. Find x.



$$\frac{x+20}{x+8} = \frac{18}{10}$$

$$10x + 200 = 18x + 144$$

$$56 = 8x$$

$$7 = x$$

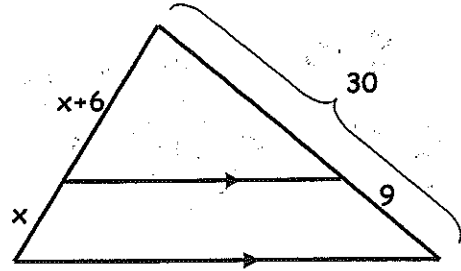
18. Find x.

$$\frac{x+6}{x} = \frac{21}{9}$$

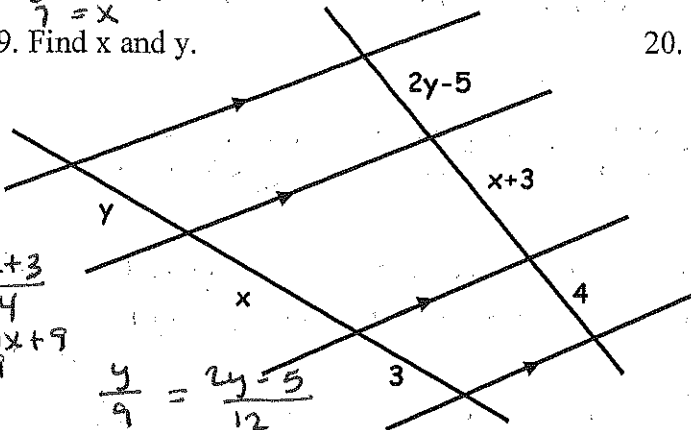
$$9x + 54 = 21x$$

$$54 = 12x$$

$$4.5 = x$$



19. Find x and y.



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

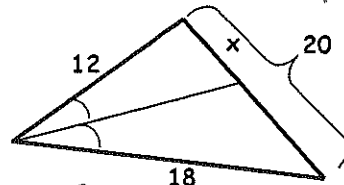
$$4x = 3x + 9$$

$$x = 9$$

$$\frac{y}{9} = \frac{2y-5}{12}$$

$$12y = 18y - 45$$

20. Find x.



$$\frac{18}{12} = \frac{20-x}{x}$$

$$18x = 240 - 12x$$

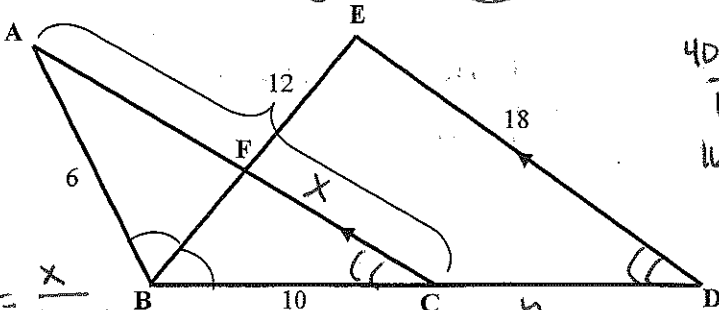
$$30x = 240$$

$$x = 8$$

21. Find CF and BD.

$$45 = 6y$$

$$\frac{45}{6} = y \Rightarrow y = \frac{15}{2}$$



$$\frac{10}{6} = \frac{x}{12-x}$$

$$120 - 10x = 6x$$

$$120 = 16x$$

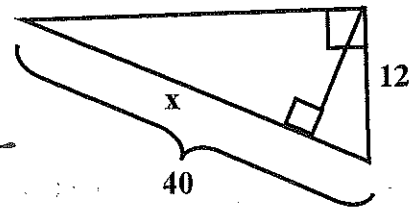
$$7.5 = \frac{10}{10+y}$$

$$75 + 7.5y = 180$$

$$7.5y = 105$$

$$y = 14$$

22. Find x



$$\frac{40-x}{12} = \frac{12}{40}$$

$$1600 - 40x = 144$$

$$-40x = -1456$$

$$x = \frac{182}{5} = 36.4$$

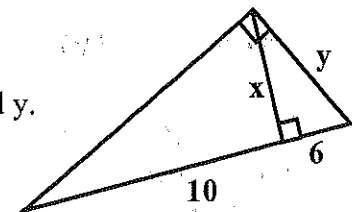
23. Find the geometric mean between 3 and 6.

$$x = 7.5 = CF \quad BD = 24$$

$$\frac{3}{x} = \frac{x}{6}$$

$$18 = x^2 \Rightarrow x = 3\sqrt{2}$$

24. Find x and y.



$$\frac{6}{x} = \frac{x}{10}$$

$$60 = x^2$$

$$2\sqrt{5} = x$$

$$\frac{6}{y} = \frac{y}{16}$$

$$y^2 = 96 \Rightarrow y = 4\sqrt{6}$$