

Honors Geometry
Ch. 6 REVIEW

Name: KEY

1) Reduce these ratios:

a) $\frac{20}{45} = \frac{4}{9}$ b) $\frac{15n^2}{40n} = \frac{3n}{8}$

2) Find the value of x:

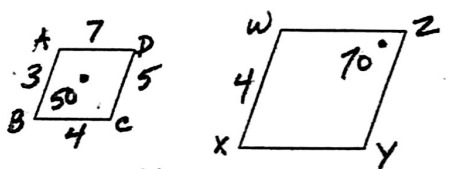
a) $\frac{x-4}{x+4} = \frac{1}{3}$

$x = 8$

b) $\frac{x}{x-2} = \frac{x+5}{x}$

$x = \frac{10}{3}$ or $3.\bar{3}$

2) ABCD ~ WXYZ



$XY = \frac{16}{3}$ $YZ = \frac{20}{3}$
 $WZ = \frac{28}{3}$ $\angle A = \text{not enough info}$
 $\angle Y \cong \angle C$

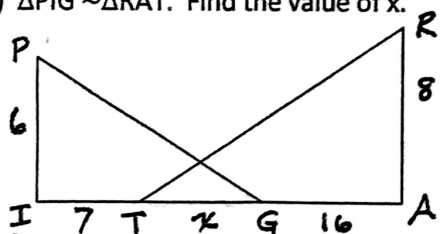
4) The angles of a triangle are in the ratio 2: 3: 10.

Use algebra to find the angles.

$2x + 3x + 10x = 180$
 $x = 12$

$24^\circ, 36^\circ, 120^\circ$

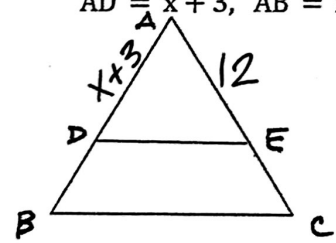
5) $\triangle PIG \sim \triangle RAT$. Find the value of x.



$\frac{6}{8} = \frac{7+x}{16+x}$ $x = 20$

6) Given: $\triangle ABC \sim \triangle ADE$, find AB.

$AD = x + 3$, $AB = x + 8$ $AE = 12$, $AC = 16$

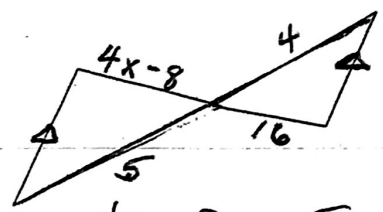


$\frac{x+3}{x+8} = \frac{12}{16}$

$x = 12$

$AB = 20$

7) Find the value of x.



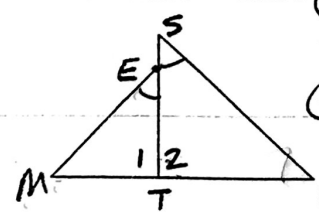
$\frac{4x-8}{16} = \frac{5}{4}$

$x = 7$

8) Given: $\angle MET \cong \angle RST$

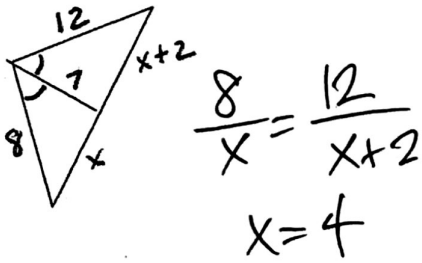
$ST \perp MR$

Prove: $\triangle MET \sim \triangle RST$

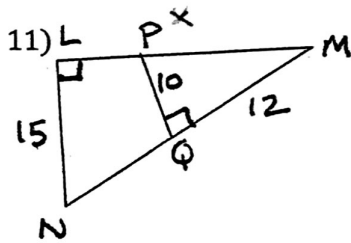
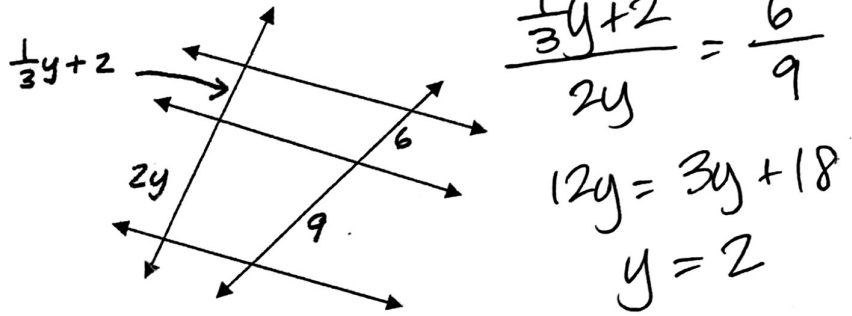


S	R
① $\angle MET \cong \angle RST$	① Given
$ST \perp MR$	② def. \perp
② $\angle 1$ & $\angle 2$ are right \angle s	③ All rt. \angle s \cong
③ $\angle 1 \cong \angle 2$	④ AA \sim
④ $\triangle MET \cong \triangle RST$	

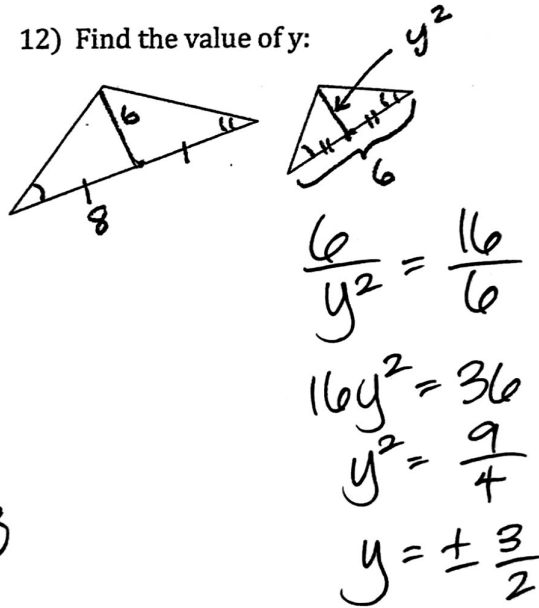
9) Find the value of x:



10) Find the value of y:



12) Find the value of y:



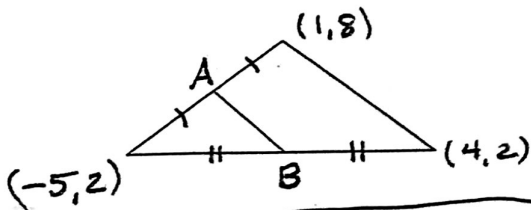
a) Write a SIMILARITY statement.

$$\triangle MLN \sim \triangle MQP$$

b) Find LM.

$$\frac{x}{12} = \frac{15}{10} \quad LM = 18$$

13) Find the length of AB in simplified Radical form.



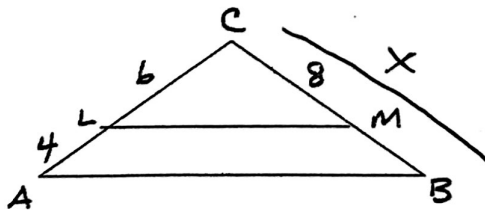
$$AB = \frac{1}{2} \sqrt{(4-1)^2 + (2-8)^2}$$

$$= \frac{1}{2} \sqrt{(3)^2 + (-6)^2}$$

$$= \frac{1}{2} \sqrt{45}$$

$$AB = \frac{3\sqrt{5}}{2}$$

14) Find CB so that $\overline{LM} \parallel \overline{AB}$.



$$\frac{6}{10} = \frac{8}{x}$$

$$x = 13.\overline{3} = CB$$

HW ~~1/17~~

WORKSHEET

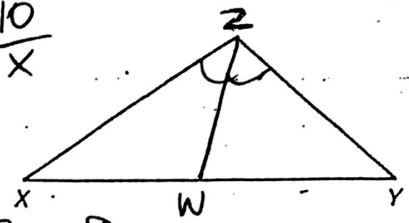
Lesson
6.5

Name _____

For exercises 1-3, $\triangle ABC \sim \triangle XYZ$.

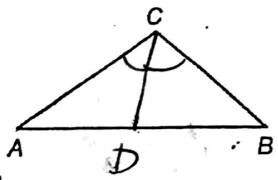
1. \overline{CD} bisects $\angle C$, and \overline{ZW} bisects $\angle Z$.
 $AB:XY = 5:8$; $CD = 10$; $ZW = \underline{16}$

$$\frac{5}{8} = \frac{10}{x}$$



2. \overline{CD} and \overline{ZW} are medians.
 $AB:XY = 3:5$; $CD = 8$; $ZW = \underline{\frac{40}{3}}$

$$\frac{3}{5} = \frac{8}{x}$$



3. \overline{CD} is an altitude drawn to \overline{AB} , and \overline{ZW} is an altitude drawn to \overline{XY} . $BC:YZ = 4:7$; $CD = 10$; $ZW = \underline{17.5}$

$$\frac{4}{7} = \frac{10}{x}$$

Find the value of x.

4. $\frac{9}{6} = \frac{10-x}{x}$
 $x = \underline{4}$

5. $\frac{14}{8} = \frac{21}{x}$
 $x = \underline{12}$

6. $\frac{15}{25} = \frac{20}{x}$
 $x = \underline{33.\bar{3}}$

7. $\frac{2x-4}{x+5} = \frac{2x-12}{x}$
 $(2x-12)(x+5) = (2x-4)x$
 $2x^2 - 2x = 60$
 $x = \underline{30}$

8. The ratio of the altitudes of two similar triangles is 3:5. The side lengths of the smaller triangle are 6, 7, and 8. What are the lengths of the sides of the larger triangle?
 $\frac{3}{5} = \frac{6}{x} \implies x = 10$ | $\frac{3}{5} = \frac{7}{x} \implies x = \frac{35}{3}$ | $\frac{3}{5} = \frac{8}{x} \implies x = \frac{40}{3}$

9. $\triangle DEF \sim \triangle HIJ$, and \overline{EG} and \overline{IK} are medians. Find the values of x and y.
 $\frac{x}{6} = \frac{14}{16}$
 $x = \underline{5.25}$ | $\frac{10}{y} = \frac{14}{16}$
 $y = \underline{11.43}$

BONUS (10)

In $\triangle ABC$, $BC = 8$, $CA = 10$, and $AB = 12$. If M is the midpoint of \overline{CA} , and \overline{BP} bisects $\angle B$, find MP .

Draw a diagram. THINK!
 (Do on separate paper.)

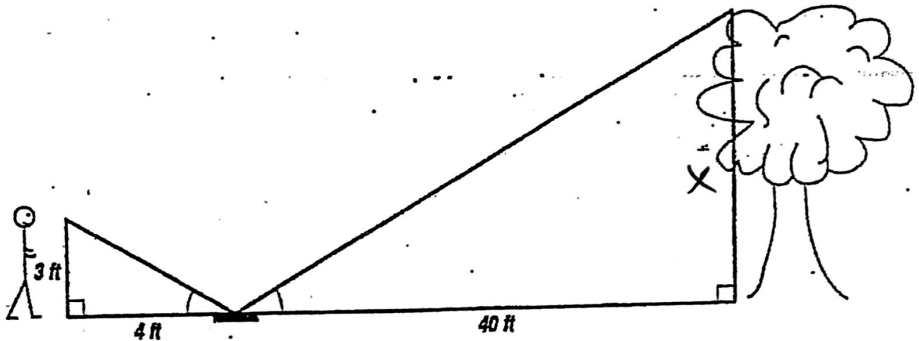
APPLICATIONS

Using the arcs for congruent angles, identify the similar triangles and solve each problem below.

1. How tall is the tree?

$$\frac{3}{x} = \frac{4}{40}$$

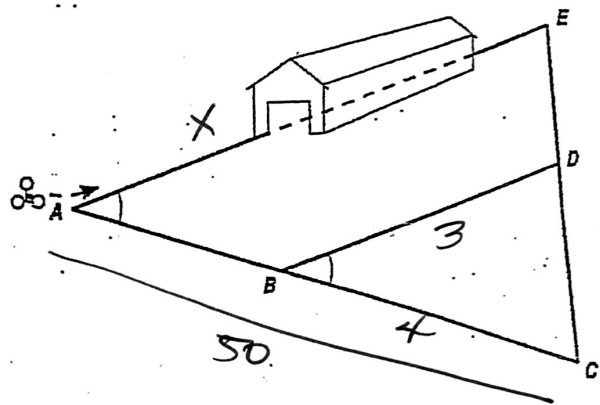
$$x = 30 \text{ ft}$$



2. How far must the biker travel from point A to point E if DB is 3 m, AC is 50 m, and BC is 4 m long?

$$\frac{3}{4} = \frac{x}{50}$$

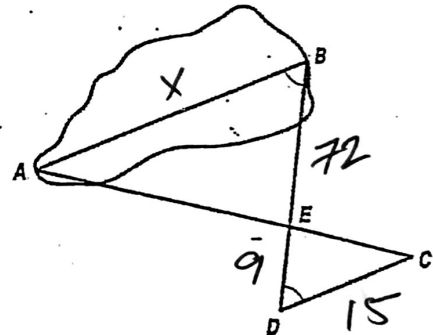
$$x = 37.5 \text{ m}$$



3. How wide is the lake if DE = 9 ft, DC = 15 ft and DB = 81 ft?

$$\frac{x}{15} = \frac{72}{9}$$

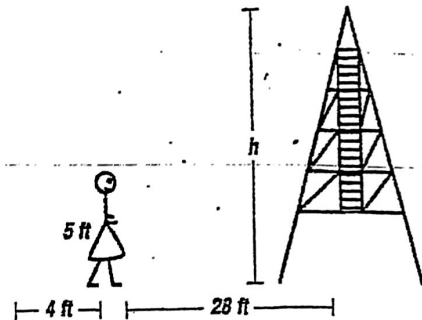
$$x = 120 \text{ ft}$$



4. Hilary is 5 ft tall. She casts a shadow 4 ft long. If a tower beside her casts a shadow 28 ft long, how high is the tower?

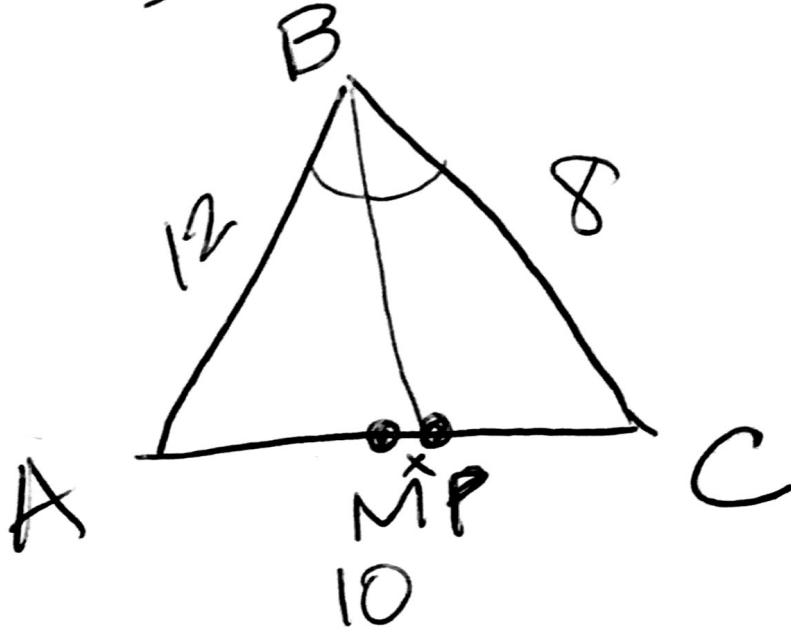
$$\frac{5}{4} = \frac{h}{28}$$

$$h = 35$$



⑩

BONUS



$$\frac{12}{x+5} = \frac{8}{5-x}$$

$$60 - 12x = 8x + 40$$

$$20 = 20x$$

$$x = 1$$