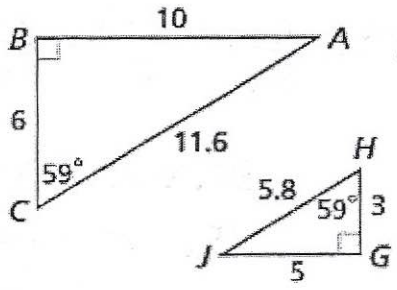
Module 11 Quiz Review (11.3-11.4) Name: Key

11.3: This section covers the definition of similar polygons as well as solving for missing sides and angles given a similarity statement.

#1 Verify the figures shown below are similar by finding three pairs of ≅ corresponding angles and showing the ratios of corresponding sides are equal. Write a similarity statement and identify both scale factors.

$\triangle ABC \sim \triangle JGH$ by multiple ~ theorems. AA~ or SAS~



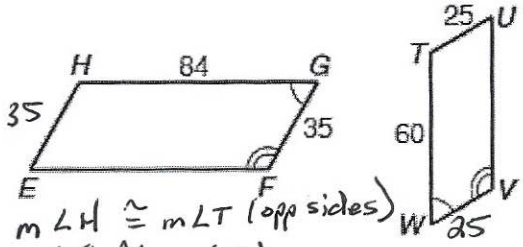
$m\angle B \cong m\angle G = 90°$
$m\angle C \cong m\angle H = 59°$
$m\angle A \cong m\angle J = 31°$

$\frac{BC}{HG} = \frac{6}{3} = 2$

$\frac{CA}{JH} = \frac{11.6}{5.8} = 2$

$\frac{BA}{JG} = \frac{10}{5} = 2$

Hint: These are parallelograms



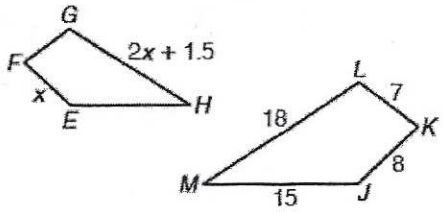
$m\angle H \cong m\angle T$ (opp sides)
$m\angle G \cong m\angle W$
$m\angle V \cong m\angle F$

$\frac{GF}{WV} = \frac{35}{25} = \frac{7}{5}$

$\frac{HG}{TW} = \frac{84}{60} = \frac{7}{5}$

$\triangle EFGH \sim \triangle UVWT$ by SAS ~

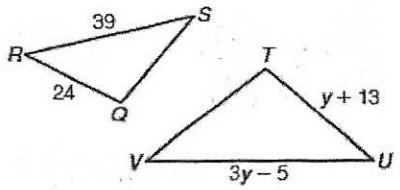
#2 *EFGH* ~ *JKLM*. What is the value of *x*?



$\frac{GH}{LM} = \frac{2x+1.5}{18} = \frac{x}{7} = \frac{FE}{KL}$

$18x = 7(2x+1.5)$
$18x = 14x + 10.5$
$4x = 10.5$
$x = \frac{21}{8}$

#3 $\triangle QRS \sim \triangle TUV$. Find the value of *y*.

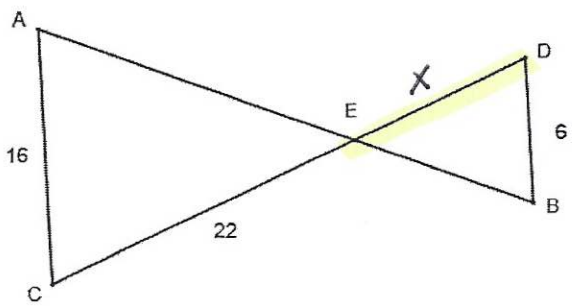


$\frac{QR}{TU} = \frac{24}{y+13} = \frac{39}{3y-5} = \frac{RS}{VU}$

$24(3y-5) = 39(y+13)$
$72y - 120 = 39y + 507$
$33y = 627$
$y = 19$

Assignment **over 11.3 Worksheet** Name:_____ A

#1 $\Delta AEC \sim \Delta BED$. Find DE.

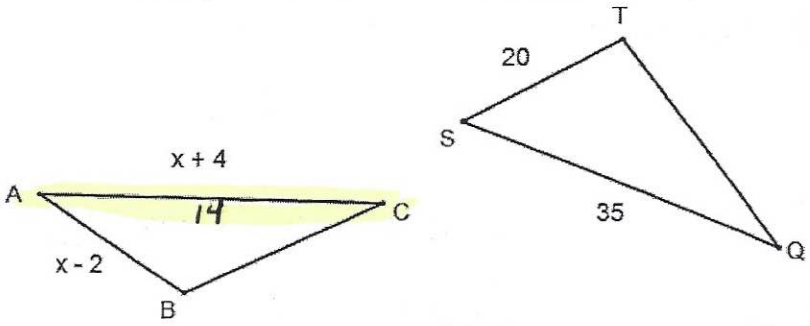


$\frac{AC}{DB} = \frac{CE}{DE}$

$\frac{16}{6} = \frac{22}{X}$ $16x = 132$

$x = 22$

#2 $\Delta ABC \sim \Delta STQ$. Find AC. (Picture is not drawn to scale).



$\frac{AB}{ST} = \frac{AC}{SQ}$ $\frac{x-2}{20} = \frac{x+4}{35}$

$35(x-2) = 20(x+4)$

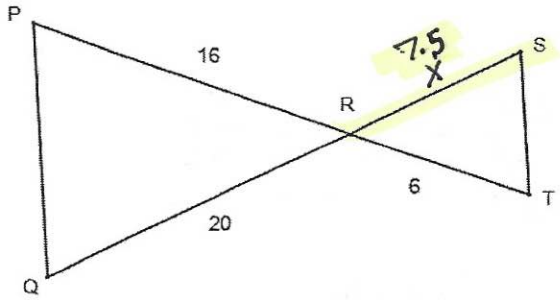
$35x - 70 = 20x + 80$

$15x = 150$

$x = 10$

Assignment **over 11.3 Worksheet** Name:_____ A'

#1 $\Delta PQR \sim \Delta TSR$. Find RS.

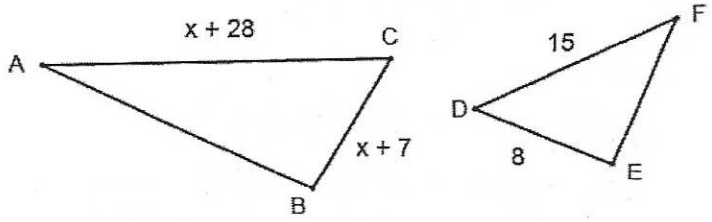


$\frac{PR}{TR} = \frac{QR}{SR}$ $\frac{16}{6} = \frac{20}{X}$ $16x = 120$

$x = 7.5$

17

#2 $\Delta ABC \sim \Delta FED$. Find BC. (Picture is not drawn to scale).



$\frac{AC}{FD} = \frac{CB}{DE}$ $\frac{x+28}{15} = \frac{x+7}{8}$

$15(x+7) = 8(x+28)$

$15x + 105 = 8x + 224$

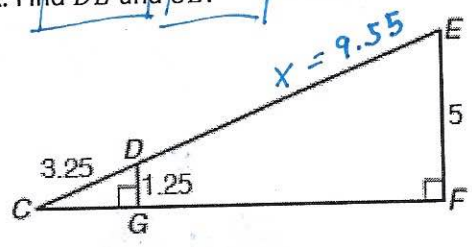
$7x = 119$

$x = 17$

11.4: In this section, we proved triangles were similar using the AA Theorem. We then found missing sides of similar figures as in the problems on the previous page.

#4 Prove each pair of triangles are similar by finding a pair of congruent corresponding angles. Write a similarity statement, then find the requested lengths:

A. Find DE and CE. 9.55 12.8

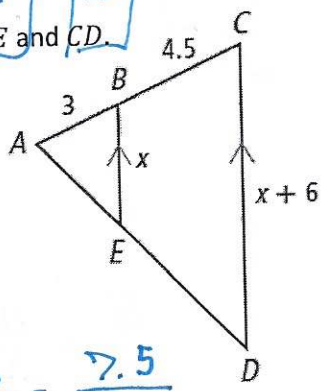


$\frac{5}{1.25} = \frac{X+3.25}{3.25}$

$16.25 = 1.25x + 4.0625$

$X = 9.55$

B. Find BE and CD. 4 10



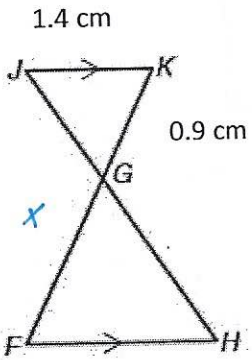
$\frac{3}{X} = \frac{7.5}{X+6}$

$7.5x = 3x + 18$

$4.5x = 18$

$X = 4$

C. Find FG. 1.35



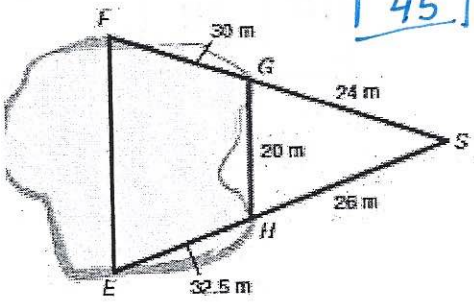
$\frac{JK}{HF} = \frac{GK}{FG}$

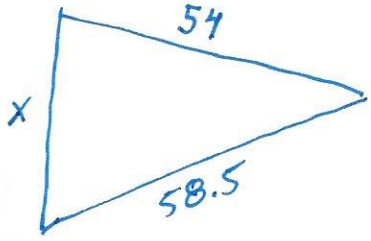
$\frac{1.4}{2.1} = \frac{0.9}{X}$

$1.4x = 1.89$

$X = 1.35$

D. To measure the distance EF across the lake, a surveyor at S locates points E, F, G, and H as shown. What is EF? 45





$\frac{24}{54} = \frac{20}{X}$

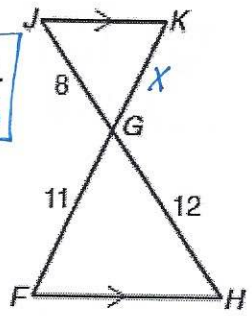
$24x = 1080$

$X = 45$

11.4: Proving Triangles Similar by AA Theorem Name:_____

For the following problems, verify the triangles are similar using the AA Postulate. Then, write a similarity statement, set up proportions, and solve the problem.

#1 Find GK. 16.5

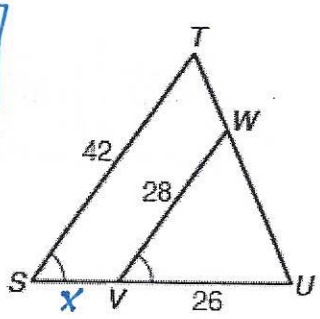


$\frac{8}{12} = \frac{11}{x}$

$8x = 132$

$x = 16.5$

#2 Find US. 39



$\frac{28}{42} = \frac{26}{26+x}$

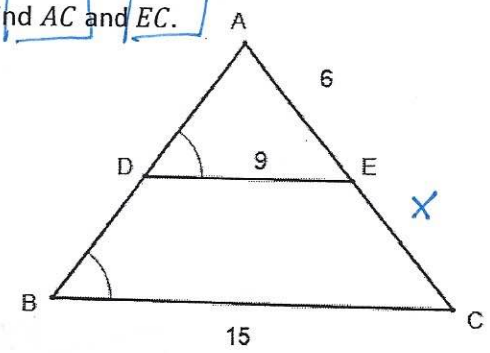
$28(26+x) = 1092$

$728 + 28x = 1092$

$28x = 364$

$x = 13$

#3 Find AC and EC. 10 4



$\frac{6}{9} = \frac{6+x}{15}$

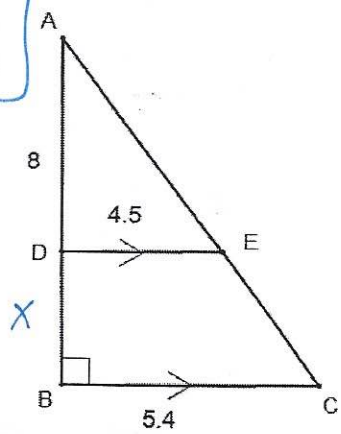
$90 = 9(6+x)$

$90 = 54 + 9x$

$36 = 9x$

$4 = x$

#4 Find AB. 9.6



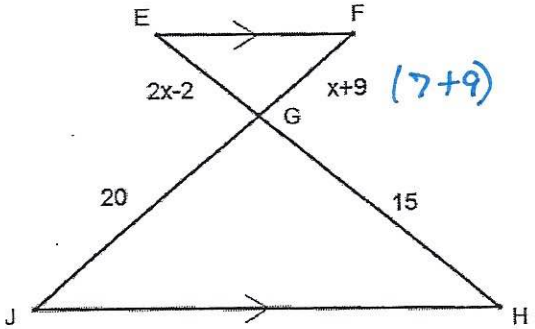
$\frac{8}{4.5} = \frac{8+x}{5.4}$

$43.2 = 36 + 4.5x$

$7.2 = 4.5x$

$1.6 = x$

#5 Find FG 16



(7+9)

$\frac{2x-2}{15} = \frac{x+9}{20}$

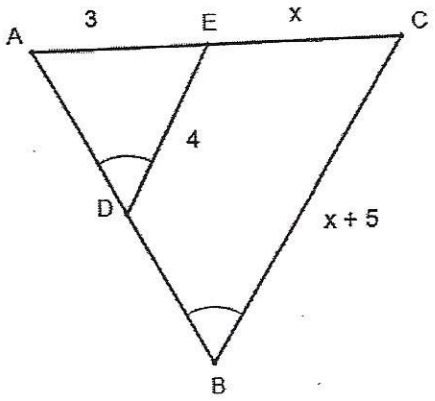
$20(2x-2) = 15(x+9)$

$40x - 40 = 15x + 135$

$25x = 175$

$x = 7$

#6 Find BC. 8



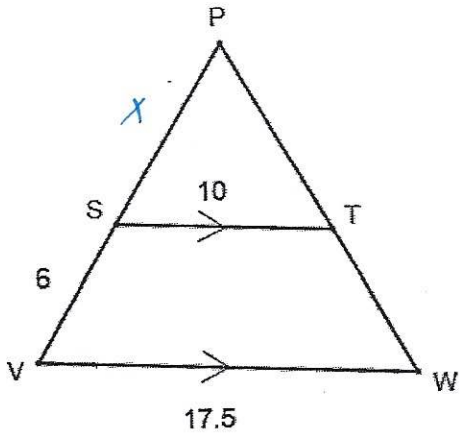
$\frac{3}{4} = \frac{3+x}{x+5}$

$4(3+x) = 3(x+5)$

$12 + 4x = 3x + 15$

$x = 3$

#7 Find PS. 8



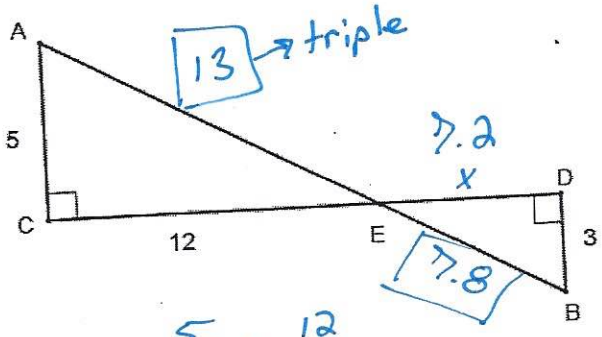
$\frac{x}{10} = \frac{x+6}{17.5}$

$17.5x = 10x + 60$

$7.5x = 60$ $x = 8$

#8 Find ED, AE, and EB.

13 7.2 7.8



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

$5x = 36$

$x = 7.2$

$(7.2)^2 + 3^2 = c^2$

$51.84 + 9 = c^2$

$60.84 = c^2$

$7.8 = c$