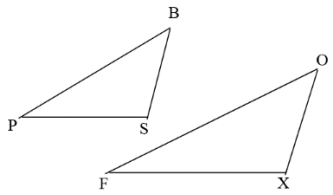
Geometry
Similar Triangles (solve for sides) Extra Practice

Name _____
Date _____ Period _____

1. $\Delta PBS \sim \Delta FOX$



These corresponding *angles* are congruent:

$\angle P \cong \angle F$

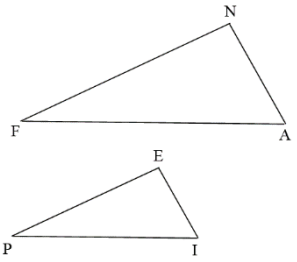
$\angle B \cong \angle O$

$\angle S \cong \angle X$

These corresponding *sides* are proportional:

$\frac{PB}{FO} = \frac{PS}{FX} = \frac{BS}{OX}$

2. $\Delta FAN \sim \Delta PIE$



These corresponding *angles* are congruent:

$\angle F \cong \angle P$

$\angle A \cong \angle I$

$\angle N \cong \angle E$

These corresponding *sides* are proportional:

$\frac{FA}{PI} = \frac{AN}{IE} = \frac{FN}{PE}$

3. $\Delta CAR \sim \Delta BUS$

Which angles are congruent?

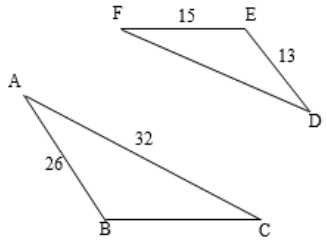
$\angle C \cong \angle B$
$\angle A \cong \angle U$
$\angle R \cong \angle S$

What sides are proportional?

$\frac{CA}{BU} = \frac{AR}{US} = \frac{CR}{BS}$

Write the corresponding sides as a proportion. Then solve for the missing sides.

4. $\Delta ABC \sim \Delta DEF$



$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

BC= 30 FD= 16

$\frac{26}{13} = \frac{BC}{15} = \frac{32}{DF}$

$\frac{26}{13} = \frac{BC}{15}$

$26(15) = 13(BC)$

$390 = 13(BC)$

$30 = BC$

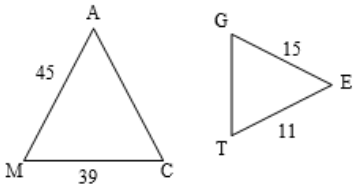
$\frac{26}{13} = \frac{32}{DF}$

$26(DF) = 13(32)$

$26(DF) = 416$

$DF = 16$

5. $\Delta MAC \sim \Delta GET$



$\frac{MA}{GE} = \frac{AC}{ET} = \frac{MC}{GT}$

AC= 33 GT= 13

$\frac{45}{15} = \frac{AC}{11} = \frac{39}{GT}$

$\frac{45}{15} = \frac{AC}{11}$

$45(11) = 15(AC)$

$495 = 15(AC)$

$33 = AC$

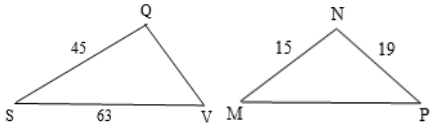
$\frac{45}{15} = \frac{39}{GT}$

$45(GT) = 15(39)$

$45(GT) = 585$

$GT = 13$

6. $\Delta MNP \sim \Delta SQV$



$\frac{MN}{SQ} = \frac{NP}{QV} = \frac{MP}{SV}$

QV= 57 MP= 21

$\frac{15}{45} = \frac{19}{QV} = \frac{MP}{63}$

$\frac{15}{45} = \frac{19}{QV}$

$15(QV) = 45(19)$

$15(QV) = 855$

$QV = 57$

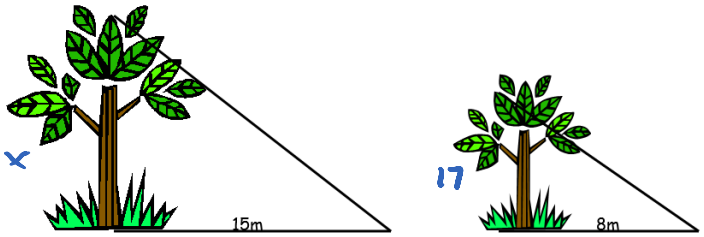
$\frac{15}{45} = \frac{MP}{63}$

$15(63) = 45(MP)$

$945 = 45(MP)$

$21 = MP$

7) Two trees cast shadows on the ground as shown. The smaller tree is 17m high. Determine the height of the taller tree.



$\frac{15}{8} = \frac{x}{17}$

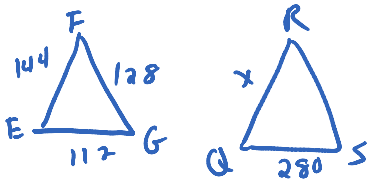
$15(17) = 8x$

$255 = 8x$

$31.875 = x$

31.875m

8) Triangles EFG and QRS are similar. The length of the sides of EFG are 144, 128, and 112. The length of the sides of QRS is 280, what is the length of the longest side of QRS? (draw a diagram and solve)

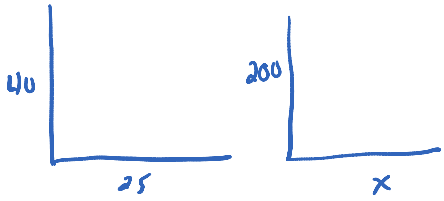


$\frac{112}{280} = \frac{144}{x}$

$112x = 40320$

$x = 360$

9) A 40-foot flagpole casts a 25-foot shadow. Find the shadow cast by a nearby building 200 feet tall. (draw a diagram and solve)



$\frac{40}{200} = \frac{25}{x}$

$40x = 5000$

$x = 125$

125ft

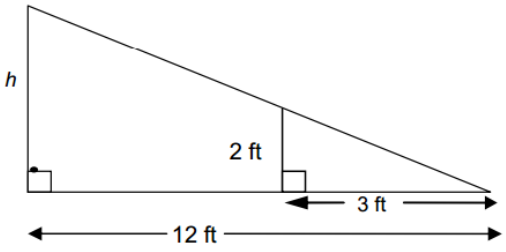
10) Chris used lumber to build a ramp. A side view of his ramp with its dimensions, is shown below. What is *h*, the height of the ramp?

$\frac{3}{12} = \frac{2}{h}$

$3h = 24$

$h = 8$

8ft



11) A girl 160cm tall, stands 360cm from a lamp post at night. Her shadow from the light is 90cm. How high is the lamp post?

$\frac{90}{90+360} = \frac{160}{x}$

$\frac{90}{450} = \frac{160}{x}$

$450(160) = 90x$

$72000 = 90x$

$800 = x$

800 cm