

UNIT 3 TEST REVIEW

Similar Triangles:

1) In the figure, $\Delta RST \sim \Delta XYZ$.

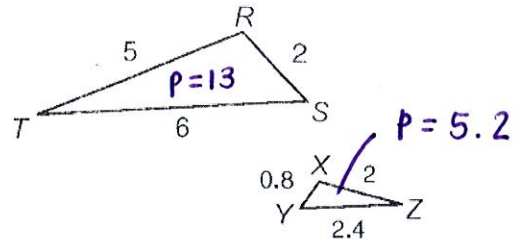
a) Find the scale factor of ΔRST to ΔXYZ .

$\frac{\text{new}}{\text{old}}$

$\frac{2}{5}$

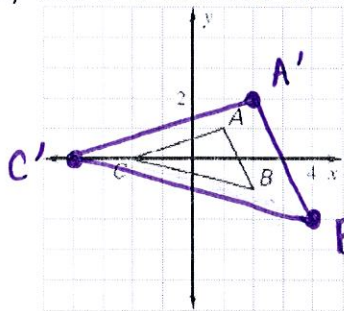
b) Find the perimeter of both triangles. What is the ratio of the perimeters of the 2 triangles?

$\frac{5.2}{13} = \frac{2}{5}$



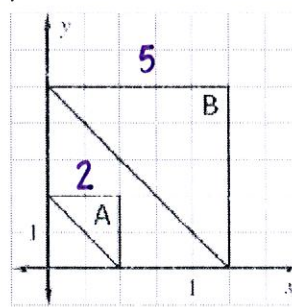
2) Dilations:

a) Draw a dilation with $k = 2$



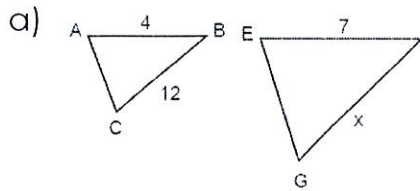
$A(1,1) \rightarrow A'(2,2)$
 $B(2,-1) \rightarrow B'(4,-2)$
 $C(-2,0) \rightarrow C'(-4,0)$

b) Determine the scale factor, $k =$ _____

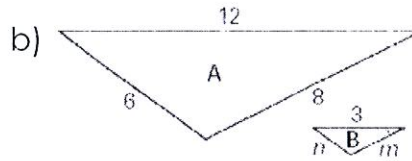


$A \rightarrow B = 5/2$
 $B \rightarrow A = 2/5$

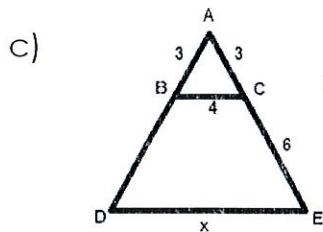
3) Find the length of the missing side(s).



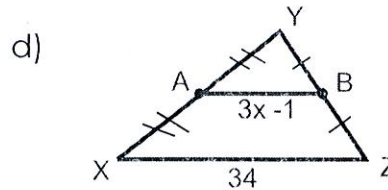
$\frac{4}{7} = \frac{12}{x}$
 $4x = 84$
 $x = 21$



$\frac{12}{3} \times \frac{6}{n} = \frac{12}{3} \times \frac{8}{m}$
 $12n = 18$
 $n = 1.5$
 $12m = 24$
 $m = 3$



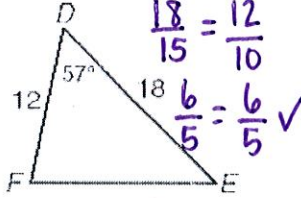
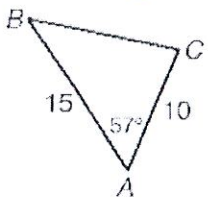
$\frac{3}{4} = \frac{9}{x}$
 $3x = 36$
 $x = 12$



$2(3x-1) = 34$
 $6x-2 = 34$
 $6x = 36$
 $x = 6$
 $AB = 17$

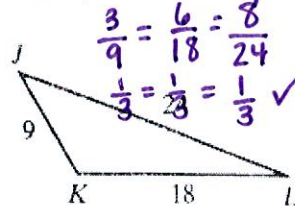
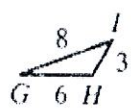
4) Determine if the following triangles are similar. If so, give the postulate and similarity statement.

a) $\Delta ABC \sim \Delta DEF$ by SAS



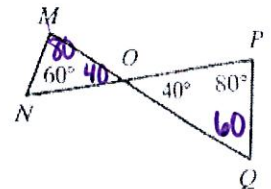
$\frac{18}{15} = \frac{12}{10}$
 $\frac{6}{5} = \frac{6}{5} \checkmark$

b) $\Delta GHI \sim \Delta LKJ$ by SSS

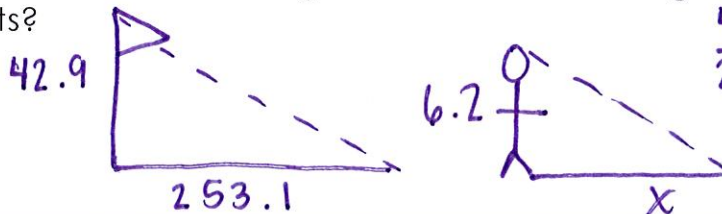


$\frac{3}{9} = \frac{6}{18} = \frac{8}{24}$
 $\frac{1}{3} = \frac{1}{3} = \frac{1}{3} \checkmark$

c) $\Delta MNO \sim \Delta PQR$ by AA



5) If a 42.9 ft tall flagpole casts a 253.1 ft long shadow, then how long is the shadow that a 6.2 ft. tall woman casts?

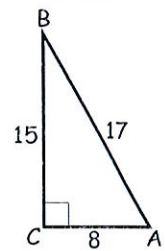


$\frac{42.9}{253.1} = \frac{6.2}{x}$
 $42.9x = 1569.22$
 $x = 36.6 \text{ ft}$

SOHCAHTOA:

6) a) Find the 3 trig ratios from Angle A and Angle B.

$\sin A = 15/17$ $\sin B = 8/17$
 $\cos A = 8/17$ $\cos B = 15/17$
 $\tan A = 15/8$ $\tan B = 8/15$



b) How do the ratios compare for the two angles?

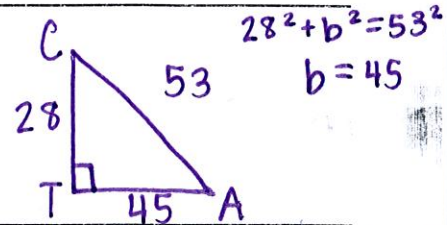
$\sin A = \cos B$, $\cos A = \sin B$, $\tan A = \frac{1}{\tan B}$

7) Draw $\triangle CAT$ where $\angle ATC = 90^\circ$, $CA = 53$, and $CT = 28$.

a) What is the length of AT? 45

b) What is $\sin C$? 45/53

c) What is $\tan A$? 28/45

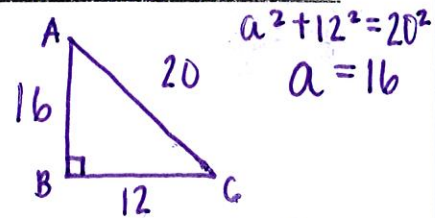


8) Draw $\triangle ABC$ where $\angle B = 90^\circ$ and $\sin A = \frac{12}{20}$.

a) What is the length of AB? 16

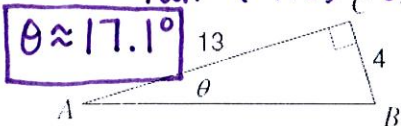
b) What is $\tan A$? $12/16 = \frac{3}{4}$ 3/4

c) What is $\cos A$? $16/20 = \frac{4}{5}$ 4/5

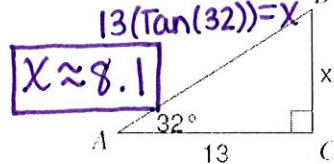


9) Solve for the missing side or angle using Trig Ratios (sin, cos, tan).

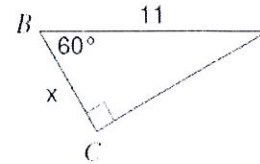
a) $\tan \theta = 4/13$
 $\tan^{-1}(4/13) = \theta$



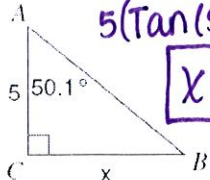
b) $\tan(32) = \frac{x}{13}$



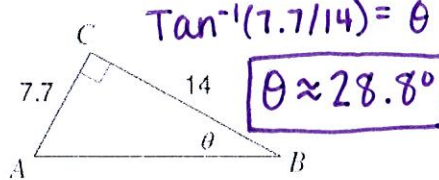
c) $\cos(60) = \frac{x}{11}$
 $11(\cos(60)) = x$
x = 5.5



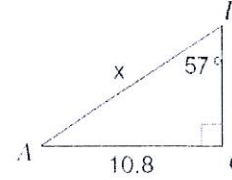
d) $\tan(50.1) = \frac{x}{5}$
 $5(\tan(50.1)) = x$



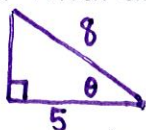
e) $\tan \theta = \frac{7.7}{14}$
 $\tan^{-1}(7.7/14) = \theta$



f) $\sin(57) = \frac{10.8}{x}$
 $x = \frac{10.8}{\sin(57)}$
x approx 12.9



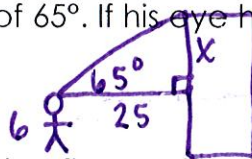
10) An 8 foot ladder is leaning against a wall so that the base is 5 feet from the base of the wall. What angle does the ladder make with the ground? Round to the nearest tenth.



$\cos \theta = \frac{5}{8}$ $\theta = \cos^{-1}(5/8)$

theta approx 51.3 degrees

11) A surveyor is standing 25 ft from a building and is looking at the top with an angle of elevation of 65 degrees. If his eye height is 6 ft, how tall is the building? Round to the nearest tenth.



$\tan(65) = \frac{x}{25}$

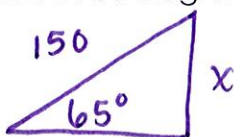
$25(\tan(65)) = x$

$x \approx 53.6$

building = $53.6 + 6 = 59.6$

59.6 ft

12) A kite is being flown using 150 yards of string. The kite has an angle of elevation with the ground of 65 degrees. How high above the ground is the kite?



$\sin(65) = \frac{x}{150}$

$150(\sin(65)) = x$

x approx 135.9