Unit 3: Similarity and Trigonometry Review Name _____

Solve each proportion.

1) $\frac{7}{8}=\frac{6}{x}$ $7x=48$, $x\approx 6.86$

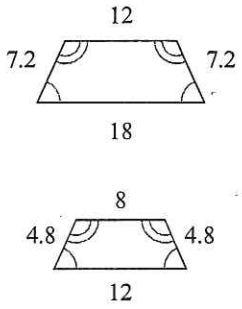
2) $\frac{v+7}{8}=\frac{7}{6}$ $6(v+7)=56$, $6v+42=56$, $6v=14$, $x=\frac{7}{3}\approx 2.3$

3) $\frac{8}{5}=\frac{r}{r-9}$ $8(r-9)=5r$, $8r-45=5r$, $-45=-3r$, $r=15$

4) $\frac{5}{2}=\frac{v+1}{v+4}$ $5(v+4)=2(v+1)$, $5v+20=2v+2$, $3v=-18$, $v=-6$

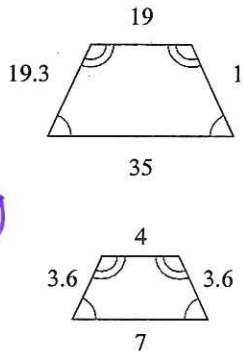
Defend whether the polygons are similar or are not similar.

5)



$\frac{12}{8}=1.5$, $\frac{7.2}{4.8}=1.5$, $\frac{18}{12}=1.5$ Similar figures since the ratio is the same for corresponding parts.

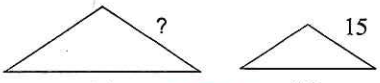
6)



$\frac{19}{4}=4.75$, $\frac{19.3}{3.6}=5.36$ Not Similar since the ratios are not the same among corresponding parts.

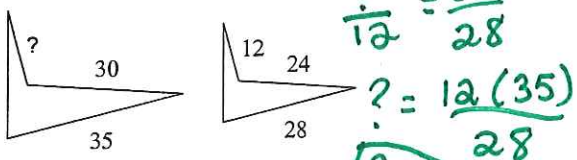
The polygons in each pair are similar. Find the missing side length.

7)



$\frac{?}{15}=\frac{30}{25}$, $?=\frac{15(30)}{25}$, $?=18$

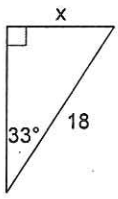
8)



$\frac{?}{12}=\frac{35}{28}$, $?=\frac{12(35)}{28}$, $?=15$

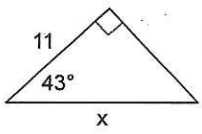
Find the missing side. Round to the nearest tenth.

9)



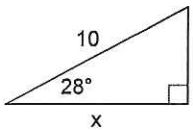
$\sin 33=\frac{x}{18}$, $x=18\sin 33$, $x\approx 9.8$

10)



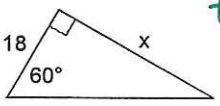
$\frac{\cos 43}{1}=\frac{11}{x}$, $x(\cos 43)=11$, $x=\frac{11}{\cos 43}$, $x\approx 15.0$

11)



$\cos 28=\frac{x}{10}$, $x=10\cos 28$, $x\approx 8.8$

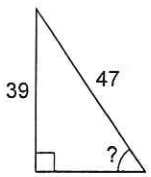
12)



$\tan 80=\frac{x}{18}$, $x=18\tan 80$, $x\approx 102.1$

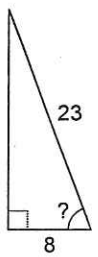
Find the measure of the indicated angle to the nearest degree.

13)



$\sin(?)=\frac{39}{47}$, $?=\sin^{-1}\left(\frac{39}{47}\right)$, $?\approx 56°$

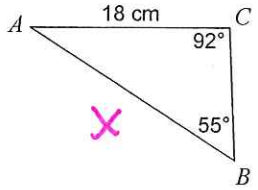
14)



$\cos(?)=\frac{8}{23}$, $?=\cos^{-1}\left(\frac{8}{23}\right)$, $?\approx 70°$

Find each measurement indicated. Round your answers to the nearest tenth.

1) Find AB

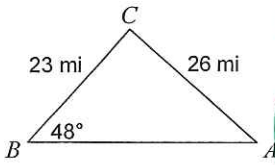


$X \approx 22.0$ cm (21.96)

$\frac{\sin 55}{18} = \frac{\sin 92}{X}$

$X = \frac{18(\sin 92)}{\sin 55}$

2) Find $m\angle A$



$m\angle A = \sin^{-1}\left(\frac{23\sin 48}{26}\right)$

$m\angle A \approx 41.1°$

$\frac{\sin A}{23} = \frac{\sin 48}{26}$

$\sin A = \frac{23(\sin 48)}{26}$

3) Ms. Paulson bikes for 4 km up a steady incline of 12 degrees.

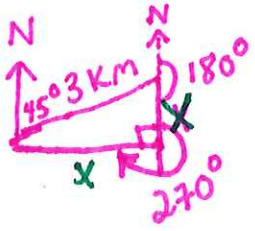
What is her vertical change? (How much higher up is she from her starting point?) Round to two decimal places.

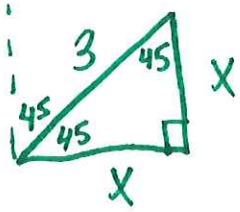
$\sin 12° = \frac{h}{4}$

$h = 4\sin 12°$

$h \approx .83$ Km

4) Ms. Berg runs for 3 km on a bearing of 45 degrees. She then runs on a bearing of 180 degrees for some distance. She then runs on a bearing of 270 degrees back to where she started. What are the exact lengths she ran after she turned each time.

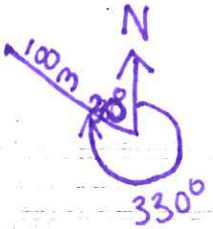


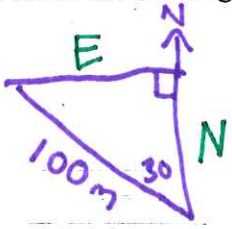


$X = \frac{3}{\frac{\sqrt{2}}{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right)$

$X = \frac{3\sqrt{2}}{2}$ Km

5) A ship navigated for 100 miles on a bearing of 330 degrees. How far North did the ship travel? How far East? What is the bearing from the ending point to the start?

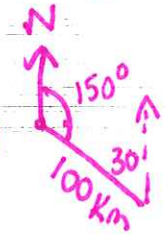




$E = 50$ m

$N = 50\sqrt{3}$ m ≈ 87 Km

(Supplementary angles)



Bearing from end to start is 150°