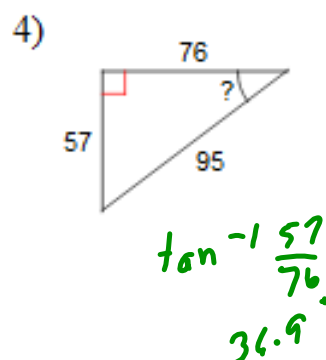
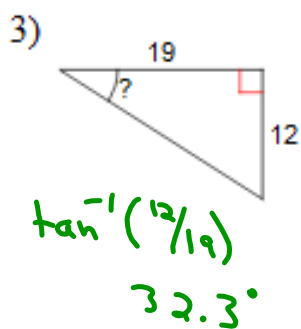
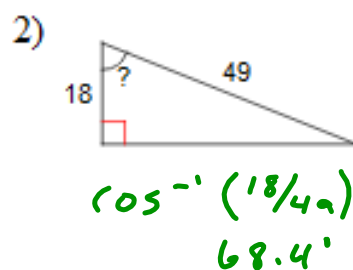
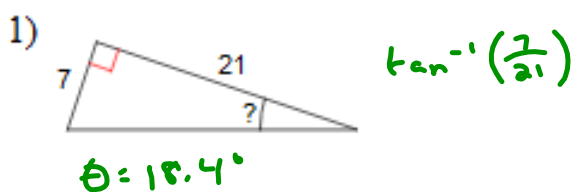


Warm Up:

Set up a proportion to find the indicated angle. Solve to the nearest degree.



Learning Goal: Today I will learn how to indirectly solve for a side.

Success Criteria: I am able to use multi steps to solve for an unknown side.

8.3 Trigonometry

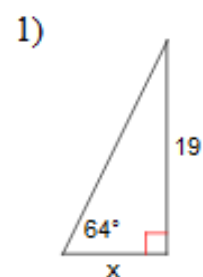
Where Am I?

Where is x on the triangle? Always compare it to the angle given.

Opp

Adj

Hyp



Example

Where Am I?

Opp

Adj

Example

2,3,7,9

1,5,6,10

Hyp

4,8

Who Am I?

Example

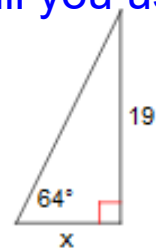
You will have a ziplock bag full of triangles. Find which trig function you would use to solve this triangle.

Sin

Cos

Tan

What trig function will you use?



Who Am I?

Sin

2, 4, 6, 7, 11, 13
18, 23, 26, 27

Cos

1, 3, 12, 14, 15, 16,
20, 24, 25

Tan

5, 8, 9, 10, 17, 19, 21, 22, 28

Trigonometry

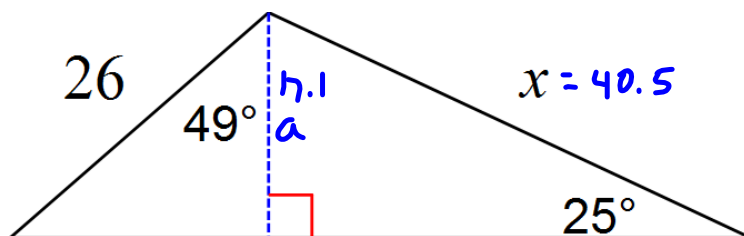
Find the missing side length. Round to the nearest tenth.

What do I know and still need to know?

$$\cos 49 = \frac{a}{26}$$

$$26 \cos 49 = a$$

$$a = 17.1$$



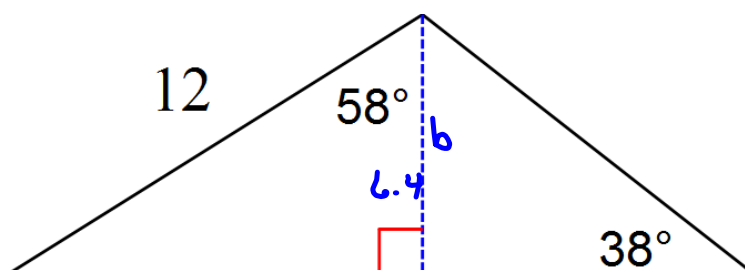
$$\sin 25 = \frac{17.1}{x}$$

$$x = \frac{17.1}{\sin 25} = 40.5$$

Trigonometry

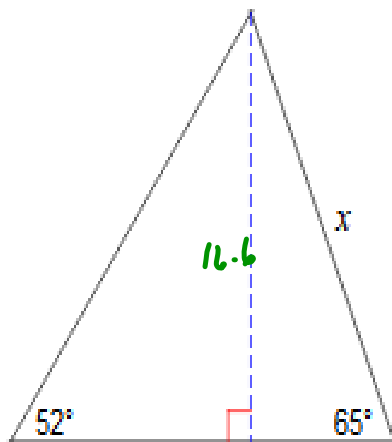
Find the missing side length. Round to the nearest tenth.

$$\begin{aligned}\cos 58 &= \frac{b}{12} \\ 12 \cos 58 &= b \\ b &= 6.4\end{aligned}$$



$$\begin{aligned}x &= 8.2 \\ \tan 38 &= \frac{6.4}{x} \\ x &= \frac{6.4}{\tan 38}\end{aligned}$$

1)



13

18.3

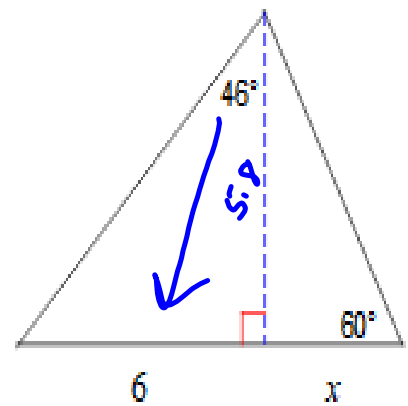
$$\tan 52 = \frac{y}{13}$$

$$13 \tan 52 = y$$

$$\sin 65 = \frac{16.6}{x}$$

$$x = \frac{16.6}{\sin 65}$$

2)



6

x

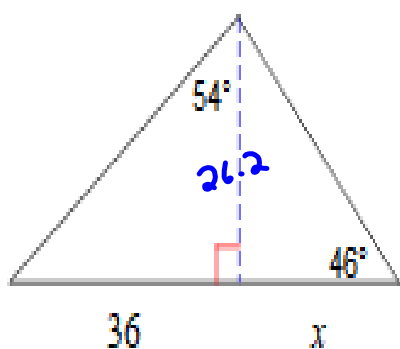
3.3

$$\tan 60 = \frac{5.8}{x}$$

$$\tan 46 = \frac{6}{y} \quad x = \frac{5.8}{\tan 60}$$

$$y = \frac{6}{\tan 46}$$

3)



$$\tan 46 = \frac{26.2}{x}$$

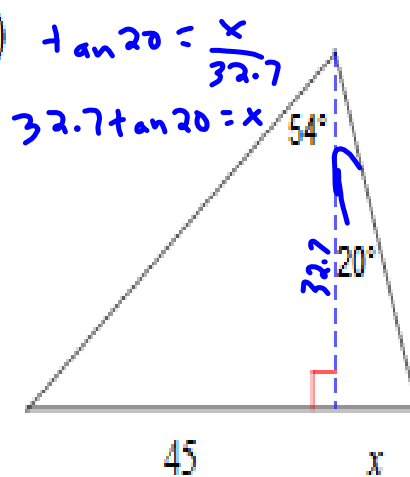
$$x = \frac{26.2}{\tan 46}$$

25.3

$$\tan 54 = \frac{36}{y}$$

$$y = \frac{36}{\tan 54}$$

4)



$$\tan 20 = \frac{x}{32.7}$$

$$32.7 \tan 20 = x$$

11.9

$$\tan 54 = \frac{45}{y}$$

$$y = \frac{45}{\tan 54} = 32.7$$

Closure: Today I learned how to use multiple steps to solve for an unknown side.

Whiteboard Practice

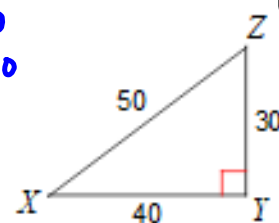
Find the value of each trigonometric ratio.

1) $\sin X$ $\frac{12}{37}$



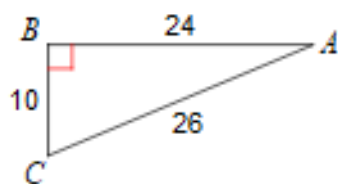
2) $\sin X$

$\frac{30}{50}$



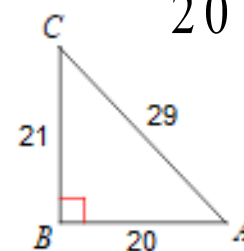
3) $\cos C$

$\frac{5}{13}$ $\frac{10}{26}$



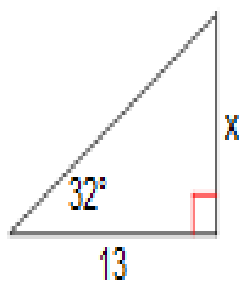
4) $\tan A$

$\frac{21}{20}$



Find the missing side. Round to the nearest tenth.

5)

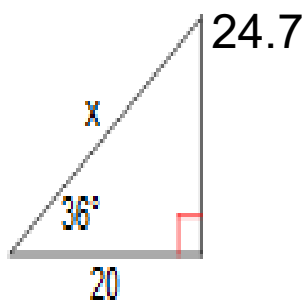


$$\tan 32 = \frac{x}{13}$$

$$13 \tan 32 = x$$

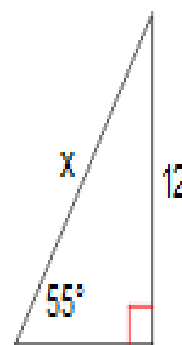
8.1

7)



8.1

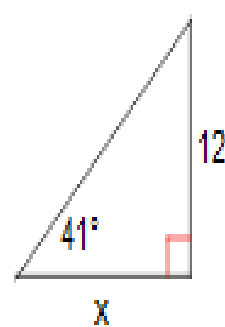
6)



$$\sin 55 = \frac{12}{x}$$

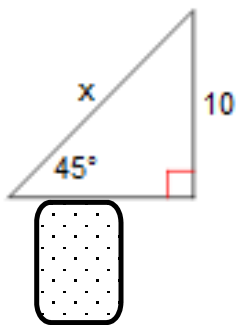
$$x = \frac{12}{\sin 55}$$

8)

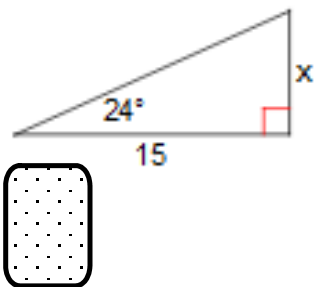


13.8

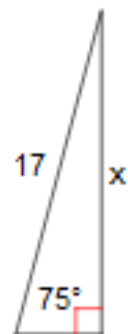
9)



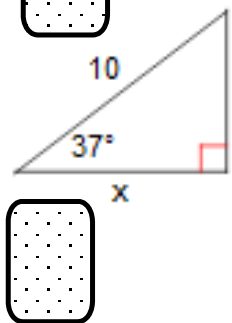
11)



10)

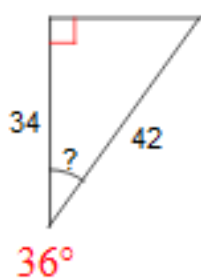


12)



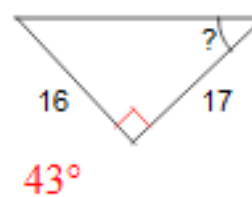
Find the measure of the indicated angle to the nearest degree.

13)

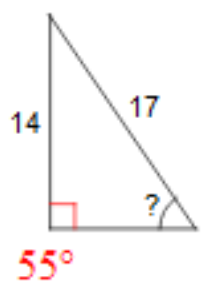


$$\cos^{-1}\left(\frac{34}{42}\right)$$

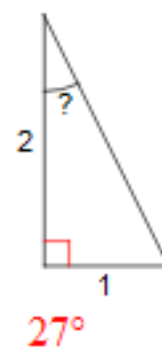
14)



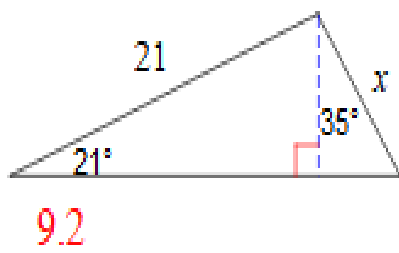
15)



16)



5)



6)

