

Trig Quiz Review 2

Round side lengths to the nearest tenth and angles to the nearest whole degree.

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Block 1,4 Date 13 May, 2016

1. Calculate the Perimeter of the figure below. Round your answer to the nearest tenth of a meter.

45.9
 65.5
 80
 35°

90.8
 131
 222.8

$P \approx 222.8$

2.

85 ft.
 48°
 75°
 x

76.5
 -22.8
 53.7

$76.5 = \frac{85}{\tan(48^\circ)}$
 $22.8 = \frac{85}{\tan(75^\circ)}$

$x \approx 53.7$

3. An airplane is at an altitude of 3 miles over the city of Daytona. Daytona is 14 miles away from the airport where the plane will land. To the nearest whole, what should the average angle of descent (angle of depression) be?

3 mi
 14 mi
 θ
 $\tan(\theta) = \frac{3}{14}$
 $\theta = 12^\circ$

Answer $\approx 12^\circ$

or $78^\circ \rightarrow$ not depression

4. A carpenter reads that the steepest angle a 30 foot ladder should make with the horizontal is 75° .

a) How far away should the ladder be placed away from the building to the nearest tenth of a foot?

b) How high up the wall will the ladder reach?

30
 75°
 x
 H

$\cos(\theta) = \frac{x}{30}$
 $x = 30 \cos(75^\circ) = 7.8'$
 $\sin(75^\circ) = \frac{H}{30}$
 $30 \sin(75^\circ) = 28.98'$

a) Answer $\approx 7.8'$

b) Answer $\approx 28.98'$

5. An eagle perched up 57 feet up in a tree and spots a mouse on the ground. The angle of depression from the eagle to the mouse is 23° . How far away is the mouse away from the eagle?

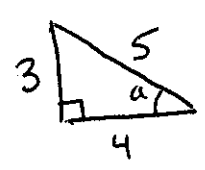
57
 23°
 H

$\cos(23^\circ) = \frac{57}{H}$
 $H = \frac{57}{\cos(23^\circ)} = 61.9$

Answer ≈ 61.9

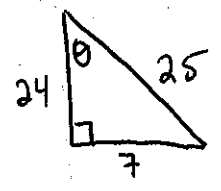
Find $\tan(a)$

$\tan(a) = \frac{3}{4} = .75$

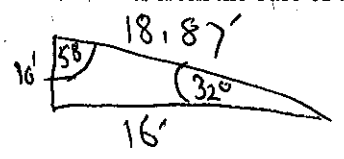


What is $\sin \theta$?

$\sin(\theta) = \frac{7}{25} = .28$

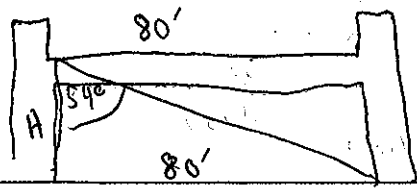


6. A lifeguard looks down at a swimmer in a swimming pool. The line of sight from the lifeguard to the swimmer forms a 32° angle with the horizontal. If he is sitting up 10 feet at the top of a lifeguard stand, how far away is the swimmer from the base of the lifeguard stand?



Answer \approx 16'

7. A pedestrian bridge connects two high-rise buildings on either side of a busy street. Ryan is standing at one end of the bridge which is 80 feet long. He measures the angle of depression from one end of the bridge to the bottom of the building on the other side of the street to be 54° . How high is the pedestrian bridge from street level?

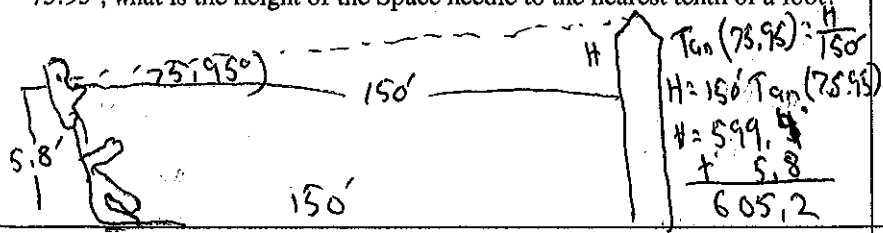


$$\tan(54) = \frac{80}{H}$$

$$H = \frac{80}{\tan(54)} = 58.123'$$

Answer \approx 58.123'

8. Ted is estimating the height of the Space Needle. If he is standing 150 feet away from the base of the Space Needle and the angle of elevation from his eyes which are 5.8 ft from the ground, to the top of the space needle is 75.95° , what is the height of the Space Needle to the nearest tenth of a foot?



$$\tan(75.95) = \frac{H}{150}$$

$$H = 150 \tan(75.95)$$

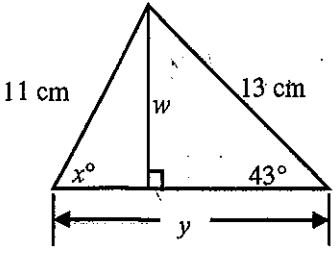
$$H = 599.4$$

$$+ 5.8$$

$$\hline 605.2$$

Answer \approx 605.2'

9. a) Find the approximate values for w , x , and y . Round side lengths to the nearest tenth of a unit and the angle to the nearest whole angle.



$$\sin(43^\circ) = \frac{w}{13}$$

$$w = 13 \sin(43^\circ) = 8.86 \text{ cm}$$

$$\sin(x) = \frac{w}{11}$$

$$x = \sin^{-1}\left(\frac{8.9}{11}\right) = 53.7^\circ$$

$$y_{34^\circ} = \frac{11}{\cos(54^\circ)} = 18.5837 \text{ cm}$$

$$y_{43^\circ} = \frac{13}{\cos(43^\circ)} = 17.7753 \text{ cm}$$

$$\hline 35.3590 \text{ cm}$$

b) Calculate the Area of the Triangle above. Round your answer to the nearest tenth of a square centimeter.

$$A = \frac{1}{2} BH = \frac{1}{2} (35.359 \text{ cm}) (8.86 \text{ cm}) = 156.6404 \text{ cm}^2$$

a)

$$w \approx \frac{8.9 \text{ cm}}{\text{round to nearest tenth}}$$

$$x^\circ \approx \frac{53.7^\circ \approx 54^\circ}{\text{round to nearest whole degree}}$$

$$y \approx \frac{35.4 \text{ cm}}{\text{round to nearest tenth}}$$

b)

$$A \approx \frac{156.6 \text{ cm}^2}{\text{round to nearest tenth}}$$

Solve for a, b, c
using 30-60-90
SL = 1/2 H / H = 2(SL)
LL = SL√3

