

Name: Kelly

Date: 2/14/18

CC GEOMETRY

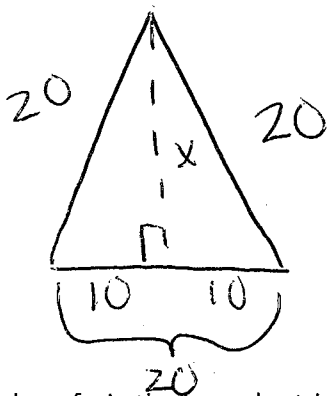
TROICI

RIGHT TRIANGLE TRIGONOMETRY REVIEW

STATION 1: PYTHAGOREAN THEOREM

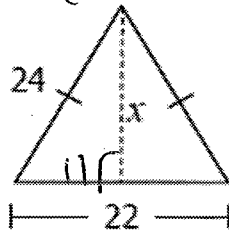
$$a^2 + b^2 = c^2$$

1. An equilateral triangle has sides of length 20. To the nearest tenth, what is the height of the equilateral triangle?



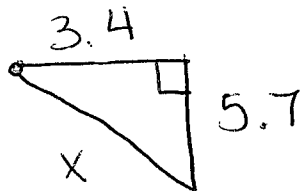
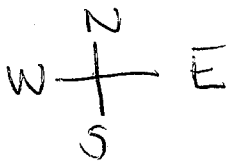
$$\begin{aligned}x^2 + 10^2 &= 20^2 \\x^2 + 100 &= 400 \\\sqrt{x^2} &= \sqrt{300} \\x &= 17.3\end{aligned}$$

2. Find the value of x in the isosceles triangle below: (nearest tenth)



$$\begin{aligned}24^2 &= 11^2 + x^2 \\576 &= 121 + x^2 \\-121 & \quad -121 \\ \hline x^2 &= 455 \\x &= 21.3\end{aligned}$$

3. Ashley jogged 3.4 miles east, then 5.7 miles south. How far is Ashley from her starting point?



$$\begin{aligned}3.4^2 + 5.7^2 &= x^2 \\\sqrt{44.05} &= \sqrt{x^2} \\x &= 6.6\end{aligned}$$

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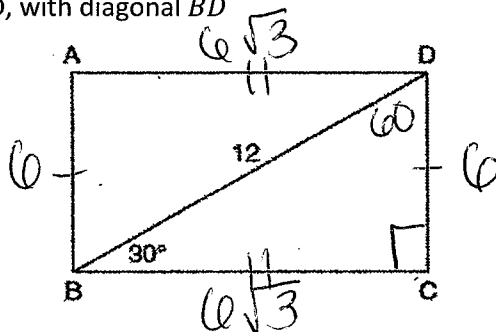
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STATION 2: SPECIAL RIGHT TRIANGLES

1. The diagram shows rectangle ABCD, with diagonal \overline{BD}



What is the perimeter of the rectangle to the nearest tenth?

30	60	90
x	$x\sqrt{3}$	2x
6	$6\sqrt{3}$	$12 = 2x$ $x = 6$

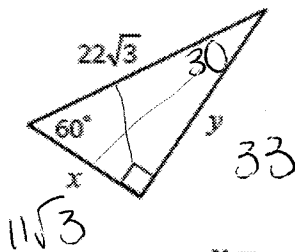
$$6 + 6 + 6\sqrt{3} + 6\sqrt{3}$$

$$12 + 12\sqrt{3}$$

32.8

2. Find the values of x and y:

30	60	90
x	$x\sqrt{3}$	2x
$11\sqrt{3}$	$11\sqrt{3}(\sqrt{3})$ 11·3 33	$\frac{22\sqrt{3}}{2} = \frac{2x}{2}$ $x = 11\sqrt{3}$



$$x = \frac{11\sqrt{3}}{1}$$

$$y = \frac{33}{1}$$

Name: Kleg

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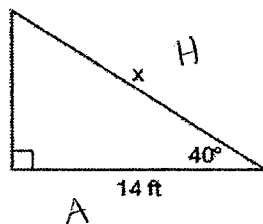
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STATION 3: SOHCAHTOA – FINDING SIDES

1. Given the right triangle in the diagram below, what is the value of x , to the nearest foot?

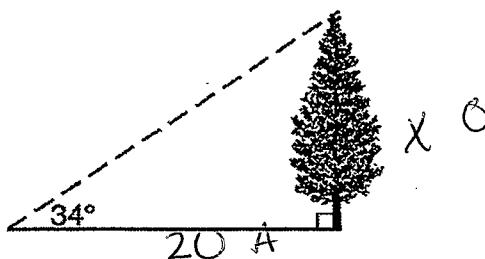


$$\frac{\cos 40}{1} = \frac{14}{x}$$

$$\frac{14}{\cos 40} = \frac{x \cos 40}{\cos 40}$$

$$x = 18.2757 = \boxed{18 \text{ ft}}$$

2. As shown in the diagram below, the angle of elevation from a point on the ground to the top of the tree is 34° .



If the point is 20 feet from the base of the tree, what is the height of the tree, to the nearest tenth of a foot?

$$\frac{\tan 34}{1} = \frac{x}{20}$$

$$x = 20 \tan 34$$

$$\boxed{x = 13.5 \text{ ft}}$$

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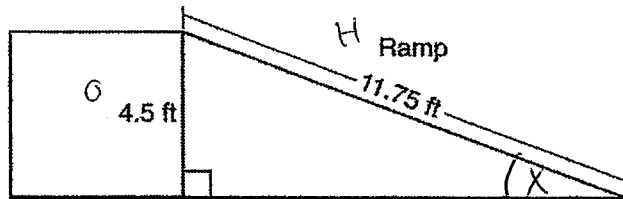
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STATION 4: SOHCAHTOA- FINDING ANGLES

1. The diagram below shows a ramp connecting to the ground to a loading platform 4.5 feet above the ground. The ramp measures 11.75 feet from the ground to the top of the loading platform.



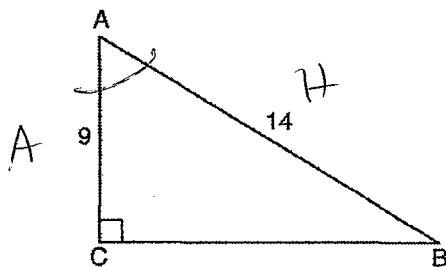
Determine and state, to the nearest degree, the angle of elevation formed by the ramp and the ground.

$$(\sin x)^{-1} = \left(\frac{4.5}{11.75}\right)^{-1}$$

$$x = 22.5183$$

$$\boxed{x = 23^\circ}$$

2. In the diagram of right triangle ABC shown below, $\overline{AB} = 14$ and $\overline{AC} = 9$.



What is the measure of $\angle A$, to the nearest degree?

$$(\cos A)^{-1} = \left(\frac{9}{14}\right)^{-1}$$

$$A = 49.9947$$

$$\boxed{A = 50^\circ}$$

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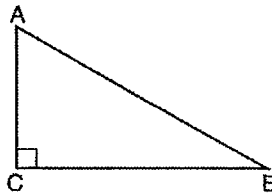
STATION 5: CO-FUNCTIONS

$\sin A = \cos B$
$\cos A = \sin B$

1. Which expression is always equivalent to $\sin x$ when $0^\circ < x < 90^\circ$?

- 1) $\cos(90^\circ - x)$
- 2) $\cos(45^\circ - x)$
- 3) $\cos(2x)$
- 4) $\cos x$

2. In scalene triangle ABC shown below, $m\angle C = 90^\circ$.



Which equation is always true?

- 1) $\sin A = \sin B$
- 2) $\cos A = \cos B$
- 3) $\cos A = \sin C$
- 4) $\sin A = \cos B$

3. In a right triangle, $\sin(40 - x)^\circ = \cos(3x)^\circ$. What is the value of x ?

$$\begin{aligned}40 - x + 3x &= 90 \\40 + 2x &= 90 \\2x &= 50 \\x &= 25\end{aligned}$$

4. In right triangle ABC with the right angle at C, $\sin A = 2x + 0.1$ and $\cos B = 4x - 0.7$. Determine and state the value of x . Explain your answer.

$$\begin{aligned}2x + .1 &= 4x - .7 \\-2x + .7 &= -2x + .7 \\8 &= 2x \\x &= .4\end{aligned}$$

sine + cosine are co-functions. which makes the $\sin A = \cos B$!