Trig Review Name: Key Hr: 3rd/4th

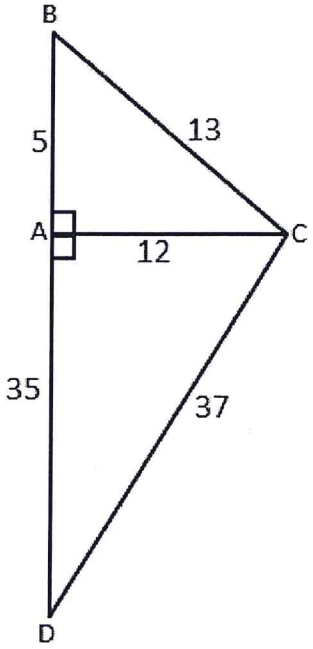
1.) Use the diagram to write the ratios for the following trigonometric functions:

SOH CAH TOA

a.) sin <CBA = $\frac{12}{13}$

b.) cos <ACD = $\frac{35}{37}$

c.) tan <ABC = $\frac{12}{5}$



Solve for *x* and *y*. Leave answers in Simplest Radical Form.

2.)

Special Rt. △'s

$x = 3\sqrt{6}$

$y = 3\sqrt{6} \cdot \sqrt{2}$

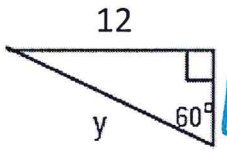
$y = 3\sqrt{12}$

$\sqrt{4}\sqrt{3}$

$y = 3 \cdot 2 \cdot \sqrt{3}$

$y = 6\sqrt{3}$

3.)



$x = 4\sqrt{3}$

$x = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{12\sqrt{3}}{3} = 4\sqrt{3}$

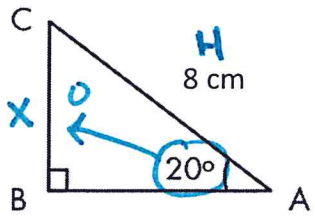
$y = 4\sqrt{3} \cdot 2$

$y = 8\sqrt{3}$

4.) Find the length of BC.

Round to the nearest tenth if necessary.

SOH CAH TOA

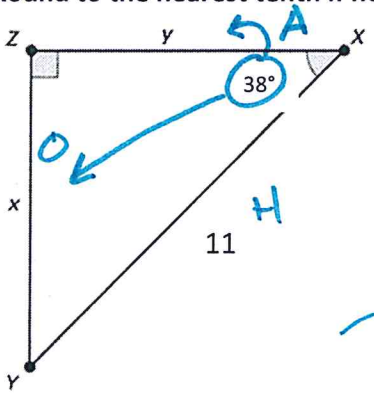


6. $\sin(20°) = \frac{x}{8}$ · 8

$x = 2.7\text{ cm}$

5.) Solve for *x* and *y*.

Round to the nearest tenth if necessary.



x

11. $\sin(38°) = \frac{x}{11}$ · 11

$x = 6.8$

y

11. $\cos(38°) = \frac{y}{11}$ · 11

$y = 8.7$

Pythagorean Thm. / Converse

6.) A farmer is constructing a new fence on his land in the shape of a triangle. His shortest side is 3 feet long, the longest side is 16 feet long and the third side is 12 feet long. He claims that when he puts all three sides together, he has a right triangle.

Did the farmer construct a right triangle? If not, **classify** the type of triangle he constructed.

$3^2 + 12^2 = 16^2$

$9 + 144 = 256$

$153 = 256$

Larger

No, he made an obtuse triangle.

7.) Write the complementary trigonometric function for the following: Comp. Rel. of sin & cos

$\sin(14°) = \cos(76°)$

$90 - 14 = 76$

8.) Solve for *x*: $\cos(22°) = \sin(8x - 4°)$ Comp. Rel. of sin & cos

$22 + 8x - 4 = 90$

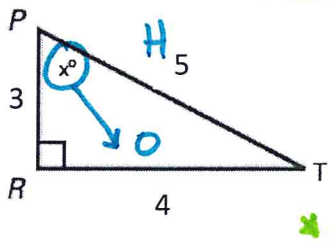
$8x + 18 = 90$

$8x = 72$

$x = 9$

Solve for *x*; round to the nearest degree. Inverse Trig.

* **9.)**



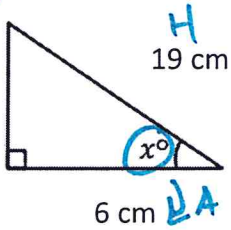
$\sin^{-1}(x°) = \frac{4}{5}$

$\sin^{-1}\left(\frac{4}{5}\right) = x$

$x = 53°$

* Note; can use any trig. function for this problem.

10.)



$\cos^{-1}(x°) = \frac{6}{19}$

$\cos^{-1}\left(\frac{6}{19}\right) = x$

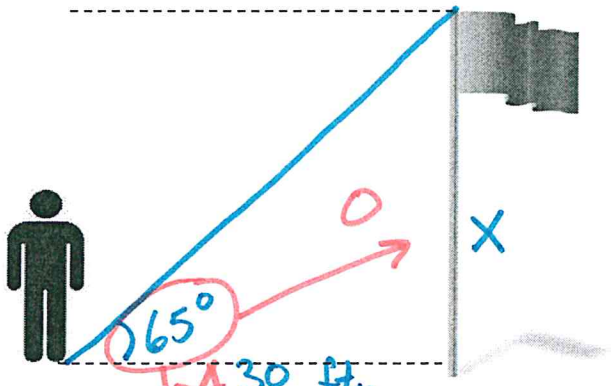
$x = 72°$

Draw a diagram and solve the following story problems. Round to the nearest tenth if necessary.

11.) The angle of elevation from an observer to the top of a flagpole is 65°. If the observer is standing 30 feet from the base of the pole, how tall is the flagpole? SOHCAH TOA

$30 \cdot \tan(65°) = \frac{X}{30} \cdot 30$

$X = 64.3$ ft.

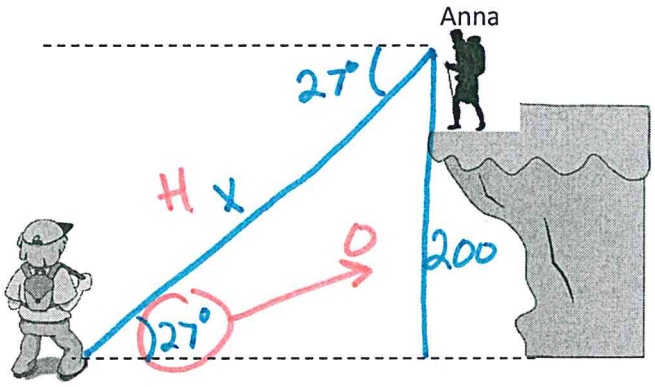


12.) Anna is standing on top of a 200 meter sheer cliff when she sees another hiker at the bottom of the valley. If the angle that she sees the hiker is 27°, how far is Anna from the other hiker? SOH CAH TOA

$\sin(27°) = \frac{200}{x}$

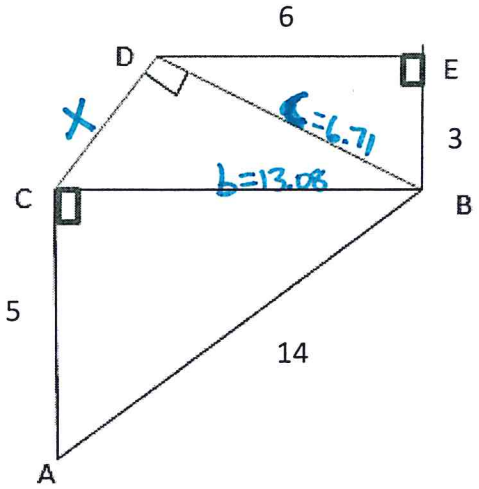
$x = \frac{200}{\sin(27°)}$

$x = 440.5$ m



13.) What is the length of the side DC? Round your answer to the nearest hundredth.

Pythag. Thm.



$c^2 = 3^2 + 6^2$

$c^2 = 9 + 36$

$c^2 = 45$

$c = 6.71$

$b^2 + 5^2 = 14^2$

$b^2 + 25 = 196$

$b^2 = 171$

$b = 13.08$

$x^2 + 6.71^2 = 13.08^2$

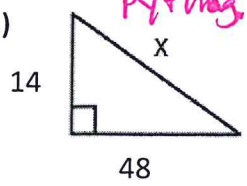
$x^2 + 45.02 = 171.09$

$x^2 = 126.07$

$X = 11.23$

Find the values of the missing variables. Leave answers in Simplest Radical Form. Pythag. thm.

14.) Pythag. thm.



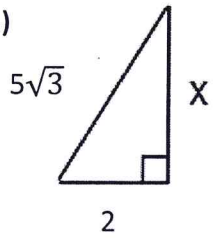
$14^2+48^2=x^2$

$196+2304=x^2$

$2500=x^2$

$\boxed{x=50}$

15.)



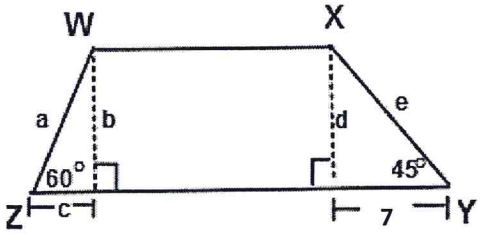
$2^2+x^2=(5\sqrt{3})^2$

$4+x^2=75$

$x^2=71$

$\boxed{x=\sqrt{71}}$

16.)



WXYZ is a trapezoid

Special Rt. $\triangle$s

$\boxed{d=7}$

$\boxed{e=7\sqrt{2}}$

$\boxed{b=7}$

$c=\frac{7}{\sqrt{3}}=\frac{7\sqrt{3}}{3}$

$\boxed{c=\frac{7\sqrt{3}}{3}}$

$a=\frac{7\sqrt{3}}{3}\cdot 2$

$\boxed{a=\frac{14\sqrt{3}}{3}}$