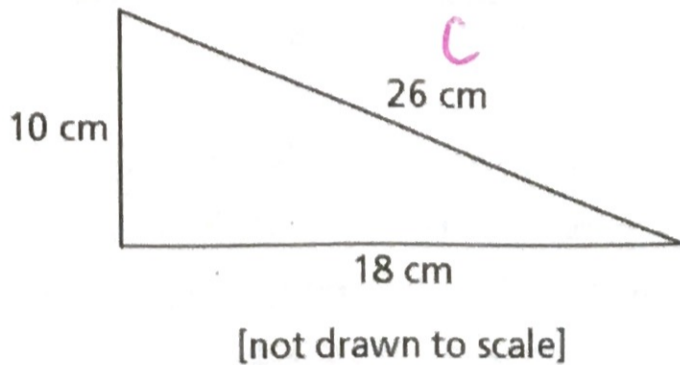


Name: Key!

Date: \_\_\_\_\_

### Unit 10 Review

1. Pat drew the triangle below. Is Pat's triangle a right triangle? Show work & Justify your answer.



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

$$10^2 + 18^2 = 26^2$$

$$100 + 324 = 676$$

$$424 \neq 676$$

NO, this is not a right  $\Delta$  b/c Pythagorean theorem does not work.

2. Are the following sides represent sides of a right triangle? 16 ft, 20 ft, 12 ft Show your work & explain.

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

$$16^2 + 12^2 = 20^2$$

$$256 + 144 = 400$$

$$400 = 400$$

Yes, the sides form a right  $\Delta$ .

3. A clock tower has a circular clock face with a circumference of  $48\pi$  feet. What is the radius of the clock face?

- A. 6 feet      B. 12 feet      C. 24 feet      D. 72 feet

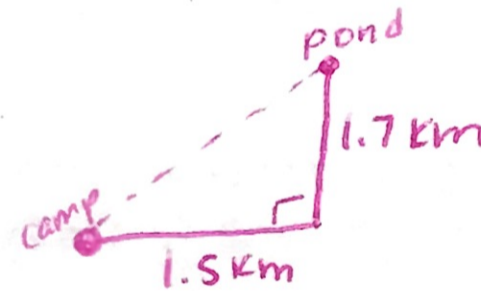
$$C = \pi d$$

$$\frac{48\pi}{\pi} = \frac{\pi d}{\pi}$$

$$48 = d \quad r = 24 \text{ ft}$$

4. Two hikers leave camp and walk 1.5 km. east. They then turn due north, walking 1.7 km. to a large pond. To the nearest tenth, how far is the pond from camp?

- A. 2.3 km.  
B. 3.2 km.  
C. 1.2 km.  
D. 1.1 km



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

$$1.5^2 + 1.7^2 = c^2$$

$$2.25 + 2.89 = c^2$$

$$\sqrt{5.14} = \sqrt{c^2}$$

$$2.3 = c$$

km

5. Two legs of a right triangle are 8 and 13. If  $x$  represents the length of the hypotenuse, which equation can be used to find the value of  $x$ ?

- A.  $8^2 + 13^2 = x^2$       C.  $x^2 + 13^2 = 8^2$   
B.  $8^2 + x^2 = 13^2$       D.  $8^2 + 13^2 = x$

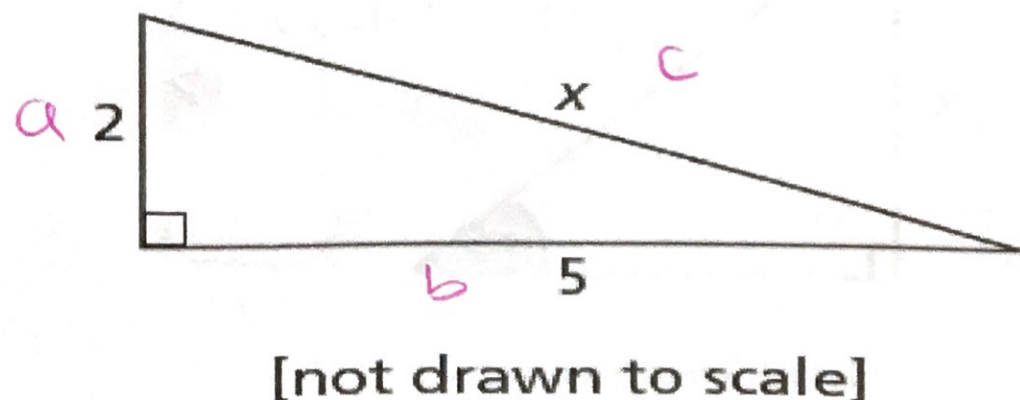
6. What is the value of  $x$  to the nearest tenth?

$$2^2 + 5^2 = x^2$$

$$4 + 25 = x^2$$

$$29 = x^2$$

$$\boxed{5.4 = x}$$



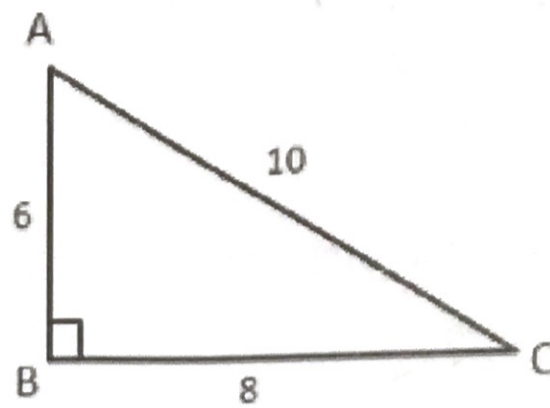
7. Using the diagram to the right, Identify the ratio for the following:

a)  $\sin A = \frac{o}{h} = \frac{8}{10}$  or  $\frac{4}{5}$

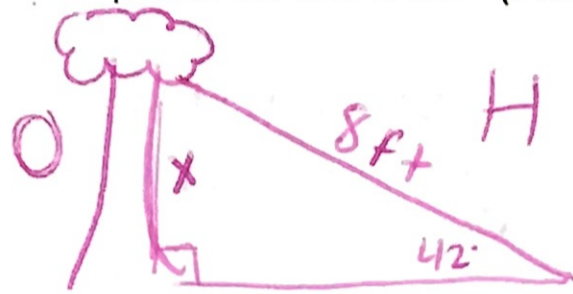
c)  $\tan A = \frac{o}{a} = \frac{8}{6} = \frac{4}{3}$

b)  $\cos C = \frac{a}{h} = \frac{8}{10}$  or  $\frac{4}{5}$

d)  $\cos A = \frac{a}{h} = \frac{6}{10} = \frac{3}{5}$



8. A nursery plants a new tree and attaches a wire to help support the tree while its roots take hold. An eight foot wire is attached to the tree and to a stake in the ground. From the stake in the ground the angle of elevation of the connection with the tree is  $42^\circ$ . Find to the nearest tenth of a foot, the height of the connection point on the tree. (Hint: draw a picture)



$\sin 42 = \frac{x}{8}$

$\frac{.6691}{1} = \frac{x}{8}$

$x = 5.4 \text{ ft}$

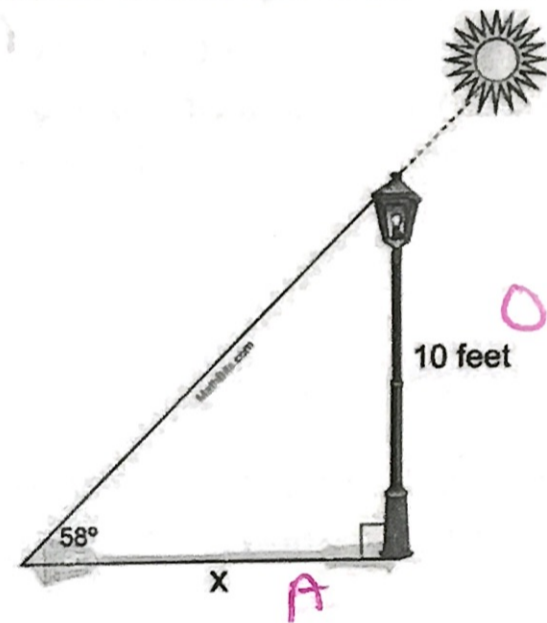
9. Find the shadow cast by a 10 foot lamp post when the angle of elevation of the sun is  $58^\circ$ . Find the length to the nearest tenth of a foot.

$\tan 58 = \frac{10}{x}$

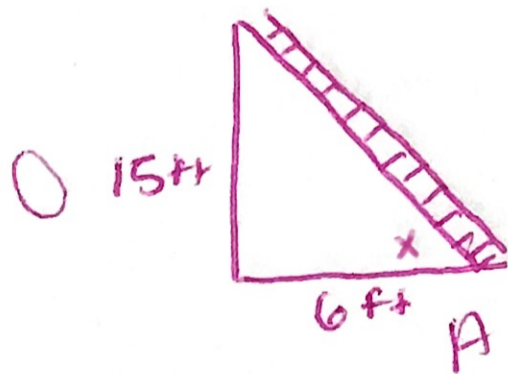
$\frac{1.6003}{1} = \frac{10}{x}$

$10 = 1.6003x$   
 $\frac{10}{1.6003} = \frac{1.6003x}{1.6003}$

$6.2 \text{ ft} = x$



10. A ladder leans against a brick wall. The foot of the ladder is 6 feet from the wall. The ladder reaches a height of 15 feet on the wall. Find to the nearest degree, the angle the ladder makes with the wall.

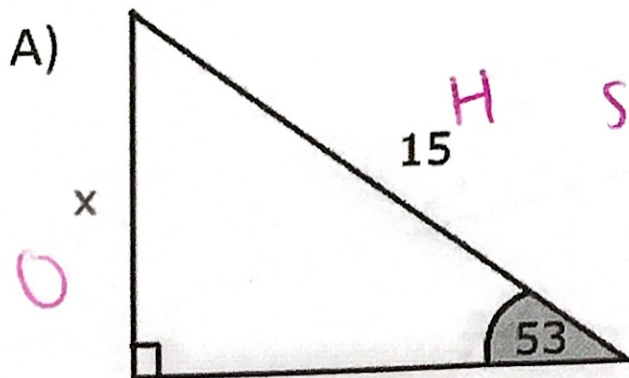


$\tan x = \frac{15}{6}$

$\tan^{-1} x = 68^\circ$

\* When finding an angle, use the inverse, the  $\boxed{2^{\text{nd}}}$   $\boxed{\tan}$   $\boxed{15/6} =$

11. Solve for the missing side x. Round to the nearest tenth.



$\sin 53 = \frac{x}{15}$

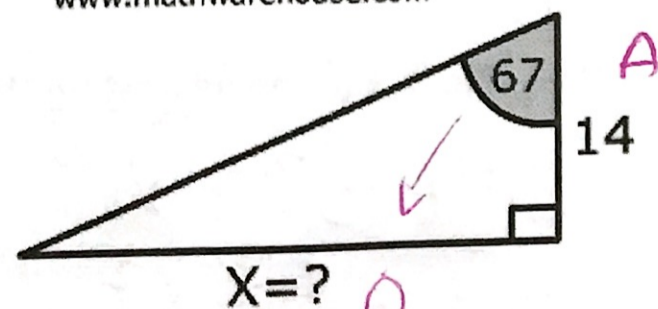
$\frac{.7986}{1} = \frac{x}{15}$

$12.0 = x$

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B)

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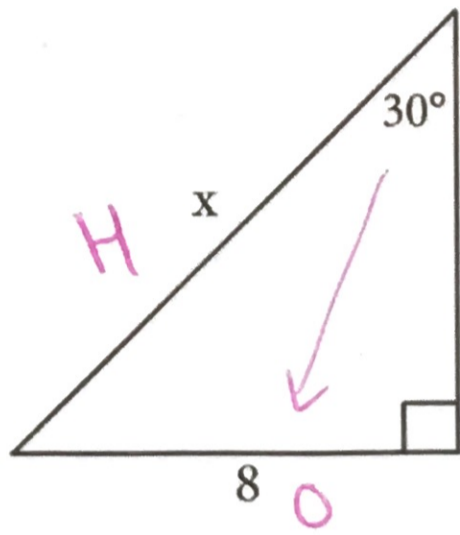


$\tan 67 = \frac{x}{14}$

$\rightarrow \frac{2.3559}{1} = \frac{x}{14}$

$33.0 = x$

12. Solve for the missing side to the nearest tenth. Show ALL work.



$$\sin 30^\circ = \frac{8}{x}$$

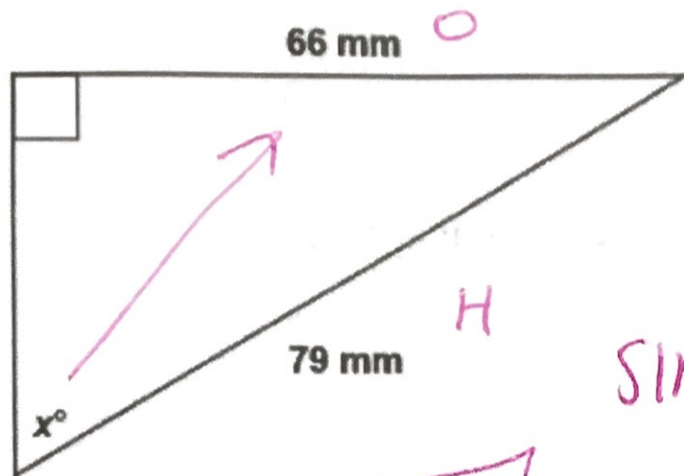
$$\frac{.5}{1} = \frac{8}{x}$$

$$\frac{.5x}{.5} = \frac{8}{.5}$$

$$x = 16$$

13. Find the missing angle to the nearest degree.

A) Find the measure of x

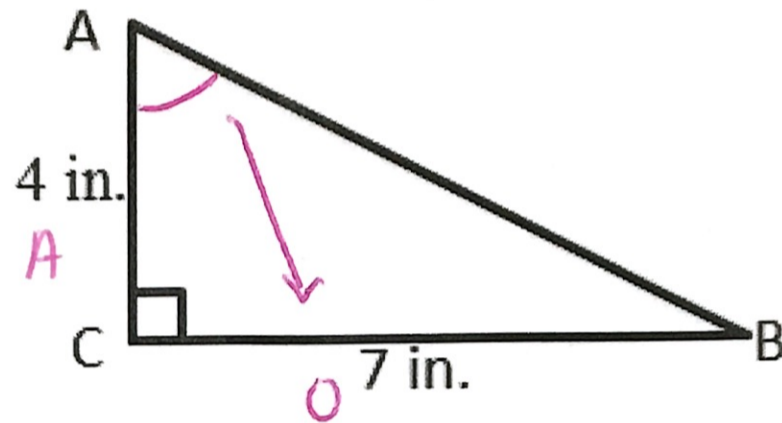


$$\sin x = \frac{66}{79}$$

2nd  
sin

$$x = 57^\circ$$

B) Find the measure of <A



$$\tan A = \frac{7}{4}$$

2nd

Tan

$$\angle A = 60^\circ$$

14. Simplify the expression below.  $-6(1 - 3x + 2x^2)$

$$-6 + 18x - 12x^2$$

$$= \boxed{-12x^2 + 18x - 6}$$

Standard form

15. Find the slope and y-intercept for the following equations.

a)  $3y + 2x = 9$

$$\frac{3y}{3} = \frac{-2x + 9}{3}$$

$m = \underline{-2/3}$      $b = \underline{3}$

b)  $3y = 12x - 27$

$$\frac{3y}{3} = \frac{12x - 27}{3}$$

$$y = -4x + 9$$

$m = \underline{-4/1}$      $b = \underline{9}$

c)  $-4x + y = 8$

$$\frac{-4x + y}{1} = \frac{8}{1}$$

$$y = 4x + 8$$

$m = \underline{4/1}$      $b = \underline{8}$