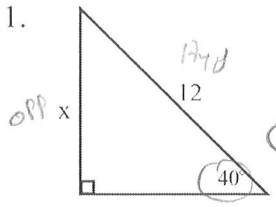
Math 3 Name: KEY

2-2 Part 1 Homework

Round all work to the **thousandths place** (3 decimal places). **Show all work!**

In 1-8, Find x

1.

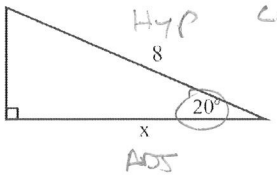


$\sin 40 = \frac{x}{12}$

$12(\sin 40) = x$

$7.713 \approx x$

2.

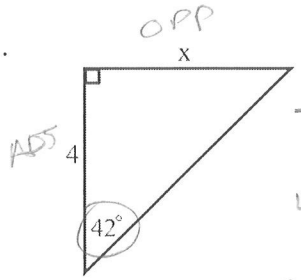


$\cos 20 = \frac{x}{8}$

$8(\cos 20) = x$

$7.518 \approx x$

3.

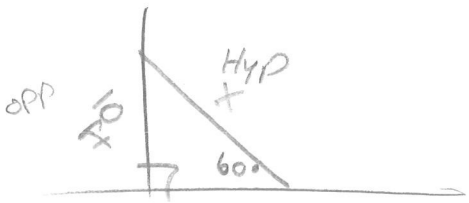


$\tan 42 = \frac{x}{4}$

$4(\tan 42) = x$

$3.602 \approx x$

4. A ladder leans diagonally against a wall. It makes a 60 degree angle with the ground. It reaches a height of 10 feet up the wall. How long is the ladder?



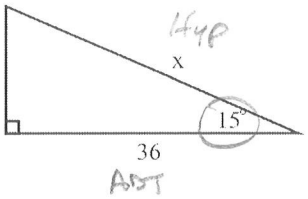
$\sin 60° = \frac{10}{x}$

$x \sin 60 = 10$

$x = \frac{10}{\sin 60}$

$x \approx 11.547$ ft

5.



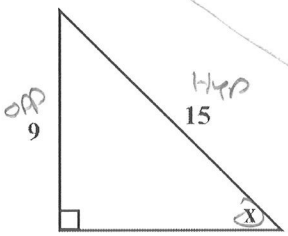
$\cos 15 = \frac{36}{x}$

$x \cos 15 = 36$

$x = \frac{36}{\cos 15}$

$x \approx 37.270$

6.

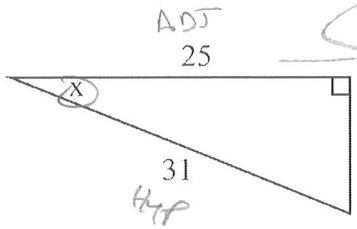


$\sin x = \frac{9}{15}$

$x = \sin^{-1}\left(\frac{9}{15}\right)$

$x \approx 36.870°$

7.

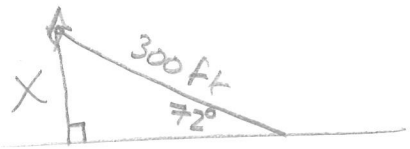


$\cos x = \frac{25}{31}$

$x = \cos^{-1}\left(\frac{25}{31}\right)$

$x \approx 36.249°$

8. A kite has a string that is 300 ft. long. One end is tied to a stake in the ground. If the angle the string makes with the ground is 72 degrees, how high up in the air is the kite?



$\sin 72 = \frac{x}{300}$

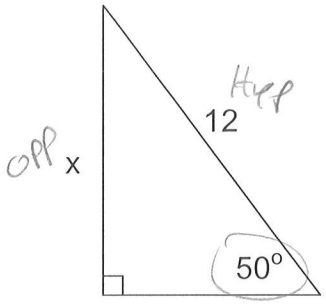
$300 \sin 72 = x$

$x \approx 285.317$ ft

Math 3 Name: Key

2-1 Part 1 Learn Check

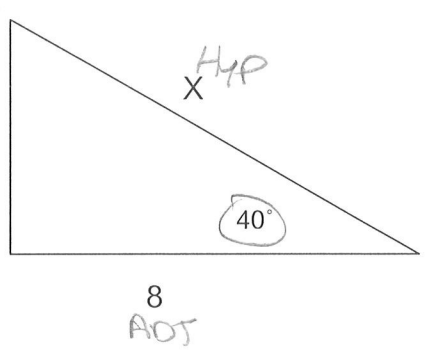
1. Find the measure of x. Circle final answer.



$\sin 50 = \frac{x}{12}$

$12(\sin 50) = x$

$9.193 \approx x$



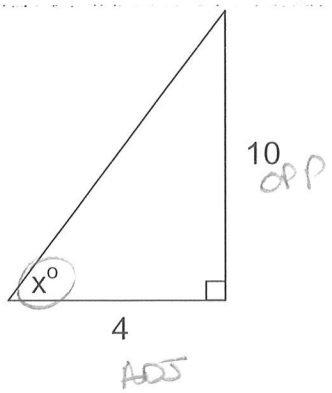
$\cos 40 = \frac{8}{x}$

$x \cos 40 = 8$

$x = \frac{8}{\cos 40}$

$x \approx 10.443$

2. Find the missing angle. Circle final answer.

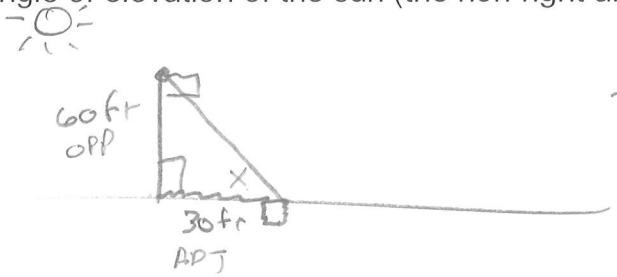


$\tan x = \frac{10}{4}$

$x = \tan^{-1}\left(\frac{10}{4}\right)$

$x \approx 68.199°$

3. A 60 foot flag pole is in front of Mayfield High School. It casts a shadow of 30 feet. Find the angle of elevation of the sun (the non-right angle closest to the ground).



$\tan x = \frac{60}{30}$

$x = \tan^{-1}\left(\frac{60}{30}\right)$

$x \approx 63.435°$