6.3 SOHCAHTOA Guided Notes

Name: _____

Period: _____ Date: 11/14/18

Right Triangle Trig/SOHCAHTOA-used to find side lengths when we have 1 side length and 1 angle measure

- What you need to know:

Θ "theta" symbol that is used to represent degree measures

- Sin $\theta = \frac{opp}{hypo}$ Cos $\theta = \frac{adj}{hypo}$ Tan $\theta = \frac{opp}{adj}$

- On a right triangle we need to identify 3 sides in relation to the angle "theta"

  Hypotenuse

  Opposite side

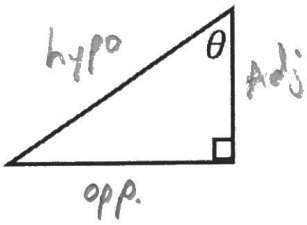
  Adjacent side

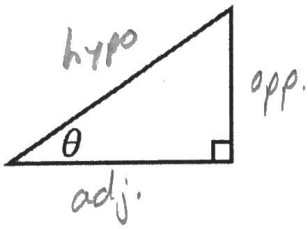
S$^{O}_{H}$ C$^{A}_{H}$ T$^{O}_{A}$

$$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan\theta = \frac{\text{opposite}}{\text{adjacent}}.$$



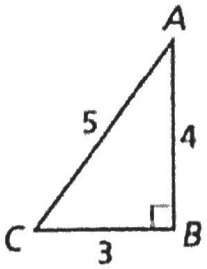


Identify the Hypotenuse, Opposite side, and Adjacent side in relation to the angle "theta"

Trigonometric ratios as fraction and decimal

Directions: Write each trigonometric ratio as a simplified fraction.

1) sin C = $\frac{4}{5}$
2) tan A = $\frac{3}{4}$
3) cos A = $\frac{4}{5}$
4) cos C = $\frac{3}{5}$
5) tan C = $\frac{4}{3}$
6) sin A = $\frac{3}{5}$



Directions: Use your calculator to find each trigonometric ratio. Round to the nearest hundredth.

7) tan 67° ≈ 2.36

8) sin 23° ≈ 0.39

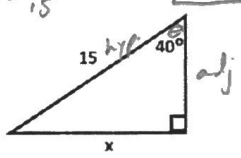
9) cos 49° ≈ 0.66

* θ is never the 90° angle

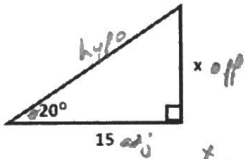
Now that we understand the set up, let's practice. Find x.

S$\frac{O}{H}$ C$\frac{A}{H}$ T$\frac{O}{A}$

$15 \cdot \sin(40) = \frac{x}{15} \cdot 15$ $\boxed{9.6 = x}$

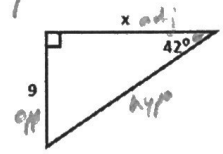


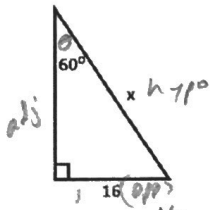
$15 \cdot \tan(20) = \frac{x}{15} \cdot 15$ $\boxed{5.5 = x}$



$x \cdot \tan(42°) = \frac{9}{x} \cdot x$

$\frac{x \tan(42°)}{\tan(42°)} = \frac{9}{\tan(42)}$ $\boxed{x \approx 10}$

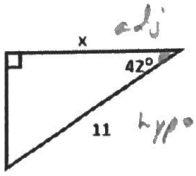




$x \cdot \sin(60°) = \frac{16}{x} \cdot x$

$\frac{x \sin(60°)}{\sin(60°)} = \frac{16}{\sin(60°)}$

$x \approx 18.5$

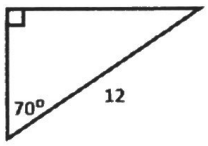


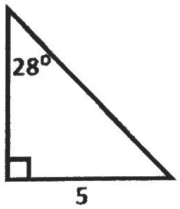
$\cos(42) = \frac{x}{11}$

$11 \cdot \cos(42) = x$

$\boxed{8.2 \approx x}$

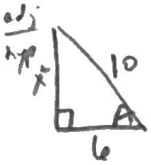
Find all missing sides:





Directions: Draw a triangle to represent the trigonometric ratio. Then find the missing side.

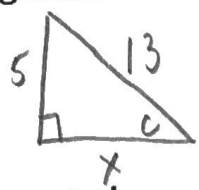
14) cos A = $\frac{6}{10}$



$x^2 + 6^2 = 10^2$

$x = 8$

15) sin C = $\frac{5}{13}$



$5^2 + x^2 = 13^2$

$x^2 =$

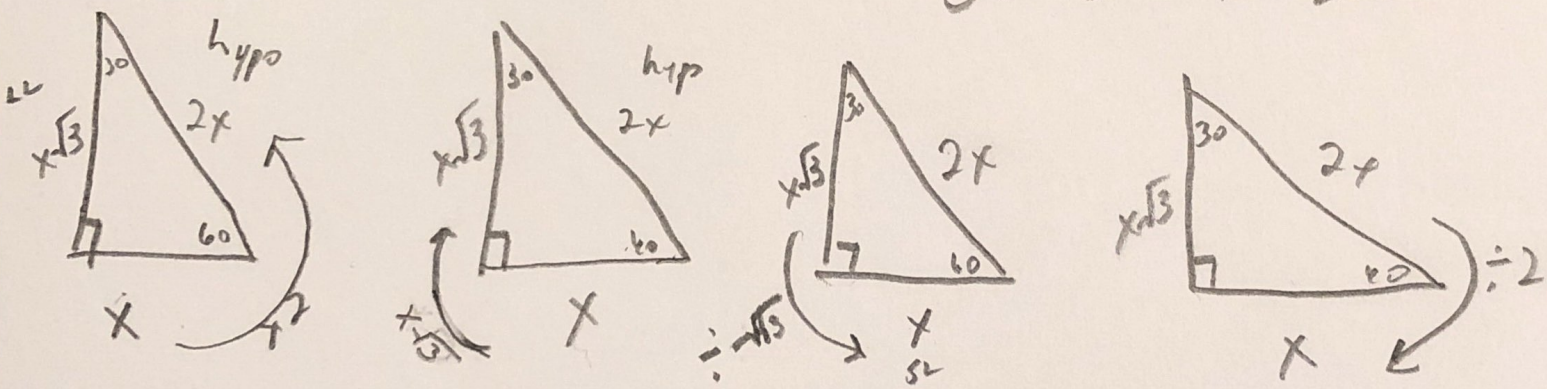
$x^2 = 144$

$\boxed{x = 12}$

Directions: Draw a triangle to represent the situation. Then find the missing side.

16) A, B, & C are the vertices of a right triangle. Angle A = 50 degrees, and Angle C is the right angle. AB = 12. Find AC.

30°-60°-90° Δ's



45°-45°-90° Δ's