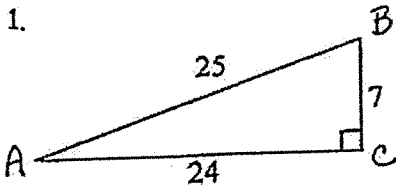


Sine, Cosine, and Tangent worksheet

Name: \_\_\_\_\_

Remember "SOH CAH TOA"

#1-2: Write the sin, cos and tan of each angle as a fraction in simplest form.



$\sin A =$

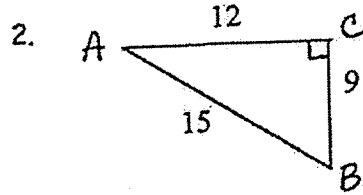
$\cos B =$

$\sin B =$

$\tan A =$

$\cos A =$

$\tan B =$



$\tan A =$

$\cos A =$

$\tan B =$

$\sin B =$

$\sin A =$

$\cos B =$

#3-11: Find the trig value using a calculator or the trig chart. Round to 4 decimal places.

3.  $\sin 32 =$

4.  $\cos 49 =$

5.  $\sin 75 =$

6.  $\tan 19 =$

7.  $\tan 35 =$

8.  $\sin 13 =$

9.  $\sin 51 =$

10.  $\tan 54 =$

11.  $\cos 14 =$

*Calculator.*

# "Read"

Notes  
2/12/19

## Right Triangles and SOH CAH TOA: Finding the Length of a Side Given One Side and One Angle

Keep in mind - SOH CAH TOA

### Example #1:

Calculate the value of  $x$  to the nearest tenth:  $\sin 38^\circ = \frac{x}{80}$

① Find  $\sin 38^\circ = 0.62$

② Replace  $0.62 = \frac{x}{80}$

③ Solve for  $x$  by cross multiply

$$x = (0.62)(80) = \boxed{49.3 = x}$$

Calculate the value of  $y$  to the nearest tenth:  $\cos 52^\circ = \frac{y}{80}$

① Find  $\cos 52^\circ = 0.62$

② Replace  $0.62 = \frac{y}{80}$

③ Solve for  $y$  by cross multiply

$$y = (0.62)(80) = \boxed{y = 49.3}$$

Calculate the value of  $z$  to the nearest hundredth:  $\tan 24^\circ = \frac{z}{34}$

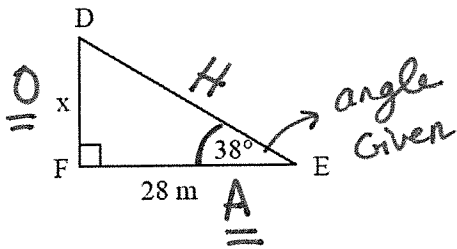
① Find  $\tan 24^\circ = 0.45$

② Replace  $0.45 = \frac{z}{34}$

③ Solve for  $z$  by cross multiply

$$z = (0.45)(34) = \boxed{z = 15.14}$$

### Example #2: Find $x$ using trig ratios



SOH CAH TOA

$O$  and  $A$  are given

$$\tan 38^\circ = \frac{O}{A} = \frac{x}{28}$$

$$0.78 = \frac{x}{28}$$

Solve for  $x$

$$x = (0.78)(28) = \boxed{21.9 = x}$$

SOH CAH TOA

$H$  and  $O$  are given

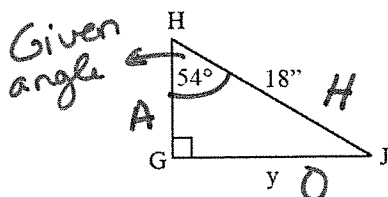
$$\sin 54^\circ = \frac{O}{H}$$

$$\sin 54^\circ = \frac{y}{18}$$

$$0.81 = \frac{y}{18}$$

Solve for  $y$

$$y = (0.81)(18) = \boxed{y = 14.6''}$$

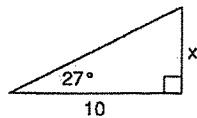


### Using Trigonometry To Find Lengths

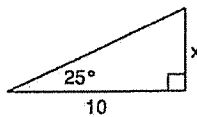
Find the missing side. Round to the nearest tenth.

*(Read given notes to answer these questions)*

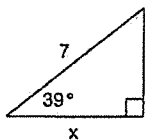
1)



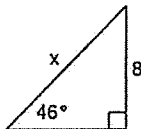
2)



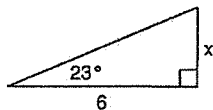
3)



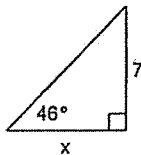
4)



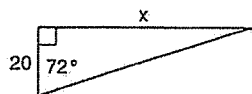
5)



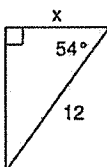
6)



7)



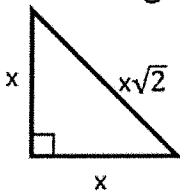
8)



### Special Right Triangle Review

#### Summary

Isosceles Right (45-45-90)  
Triangle Shortcut



$\text{hypotenuse} = \text{leg} \times \underline{\sqrt{2}}$   
 $\text{leg} = \text{hypotenuse} \div \underline{\sqrt{2}}$

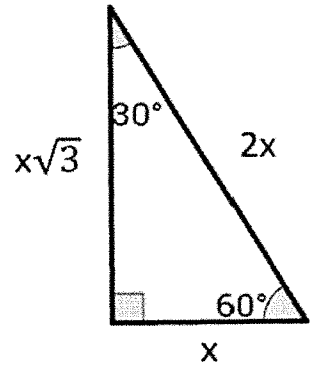
A 30-60-90 right triangle has two legs and a hypotenuse. The leg opposite the 30° angle is called the short leg. The leg opposite the 60° angle is called the long leg.

Hypotenuse = short leg  $\times$  2

Long leg = short leg  $\times$   $\sqrt{3}$

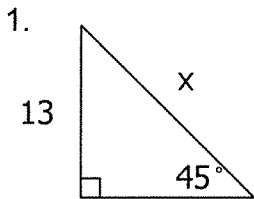
Short leg = hypotenuse  $\div$  2

Short leg = long leg  $\div$   $\sqrt{3}$

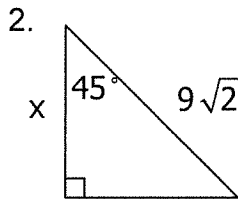


#### PRACTICE "Use the Rules above"

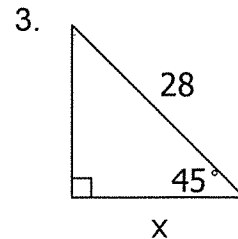
In questions 1-9, use **special right triangles** to find the value of x and y. **Show your work.**



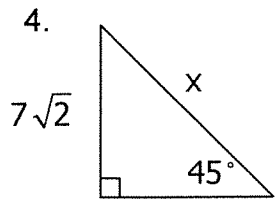
x = \_\_\_\_\_



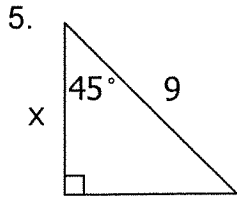
x = \_\_\_\_\_



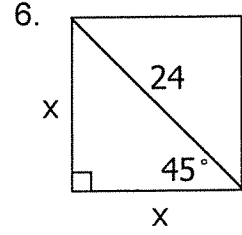
x = \_\_\_\_\_



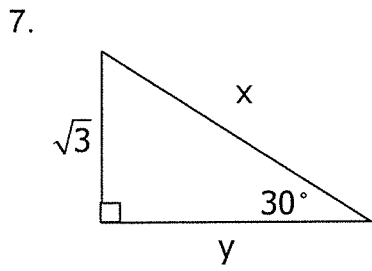
$x =$  \_\_\_\_\_



$x =$  \_\_\_\_\_

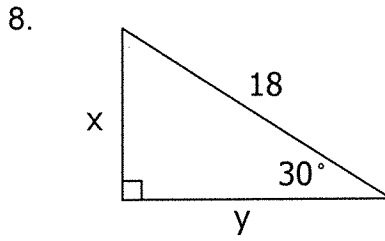


$x =$  \_\_\_\_\_



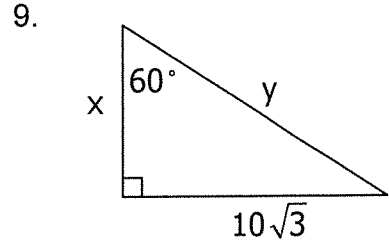
$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_



$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_



$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_