

Objective: I understand how and why trig ratios remain constant, no matter the size of the special right triangle.

Review & Warm Up

Simplify the following expressions.

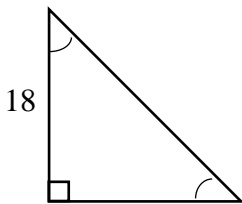
1. $\sqrt{20}$

2. $\frac{6\sqrt{10}}{2}$

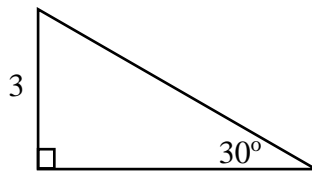
3. $\frac{2}{\sqrt{3}}$

Find the missing side lengths of each of the special right triangles.

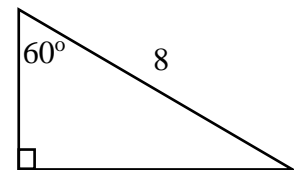
4.



5.

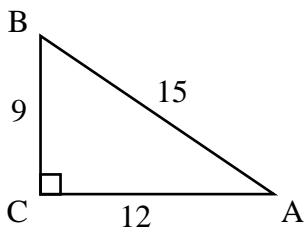


6.



Find the indicated trig ratio(s).

7.



$\sin(A) = \underline{\hspace{2cm}}$

$\sin(B) = \underline{\hspace{2cm}}$

$\cos(A) = \underline{\hspace{2cm}}$

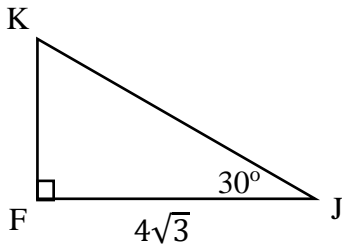
$\cos(B) = \underline{\hspace{2cm}}$

$\tan(A) = \underline{\hspace{2cm}}$

$\tan(B) = \underline{\hspace{2cm}}$

Explore

All of the following are special right triangles. Find each of the indicated trig ratios. Simplify your answers.

8.

$$\sin(J) = \underline{\hspace{2cm}}$$

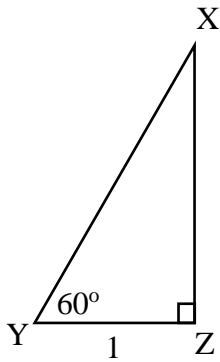
$$\sin(K) = \underline{\hspace{2cm}}$$

$$\cos(J) = \underline{\hspace{2cm}}$$

$$\cos(K) = \underline{\hspace{2cm}}$$

$$\tan(J) = \underline{\hspace{2cm}}$$

$$\tan(K) = \underline{\hspace{2cm}}$$

9.

$$\sin(X) = \underline{\hspace{2cm}}$$

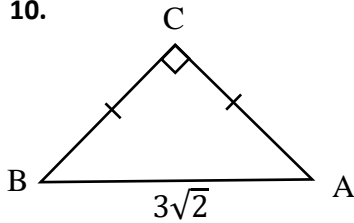
$$\sin(Y) = \underline{\hspace{2cm}}$$

$$\cos(X) = \underline{\hspace{2cm}}$$

$$\cos(Y) = \underline{\hspace{2cm}}$$

$$\tan(X) = \underline{\hspace{2cm}}$$

$$\tan(Y) = \underline{\hspace{2cm}}$$

10.

$$\sin(A) = \underline{\hspace{2cm}}$$

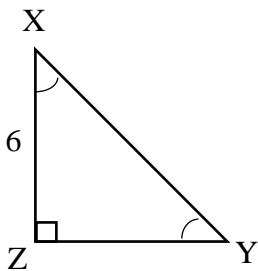
$$\sin(B) = \underline{\hspace{2cm}}$$

$$\cos(A) = \underline{\hspace{2cm}}$$

$$\cos(B) = \underline{\hspace{2cm}}$$

$$\tan(A) = \underline{\hspace{2cm}}$$

$$\tan(B) = \underline{\hspace{2cm}}$$

11.

$$\sin(X) = \underline{\hspace{2cm}}$$

$$\sin(Y) = \underline{\hspace{2cm}}$$

$$\cos(X) = \underline{\hspace{2cm}}$$

$$\cos(Y) = \underline{\hspace{2cm}}$$

$$\tan(X) = \underline{\hspace{2cm}}$$

$$\tan(Y) = \underline{\hspace{2cm}}$$

Summary

$\sin(30^\circ) =$	$\sin(60^\circ) =$	$\sin(45^\circ) =$
$\cos(30^\circ) =$	$\cos(60^\circ) =$	$\cos(45^\circ) =$
$\tan(30^\circ) =$	$\tan(60^\circ) =$	$\tan(45^\circ) =$

Practice

Find each unknown measure *without* using a calculator. It may be helpful to draw a picture if not provided.

12. $\sin(\theta) = \frac{\sqrt{2}}{2}$ $\theta = ?$

13. $\cos(\theta) = \frac{\sqrt{3}}{2}$ $\theta = ?$

14. $\sin(30^\circ) =$

15. $\sin(60^\circ) =$

16. $\cos(60^\circ) =$

17. $\tan(60^\circ) =$

18. $\cos(45^\circ) =$

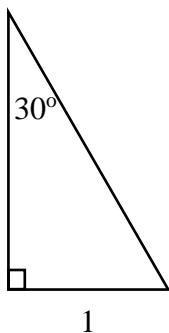
19. $\tan(45^\circ) =$

Homework – The Trig Connection

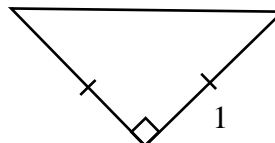
Name: _____

Fill in the side lengths of each of the special right triangles.

1.

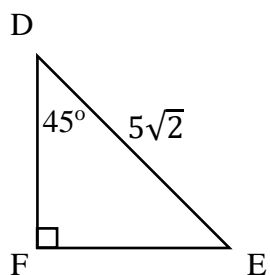


2.



Find the indicated values using the triangle provided. Simplify your answers.

3.

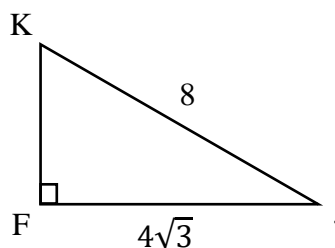


$DF = \underline{\hspace{2cm}}$

$FE = \underline{\hspace{2cm}}$

$\tan(D) = \underline{\hspace{2cm}}$

4.

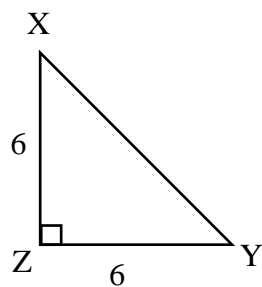


$m\angle J = \underline{\hspace{2cm}}$

$KF = \underline{\hspace{2cm}}$

$\sin(J) = \underline{\hspace{2cm}}$

5.

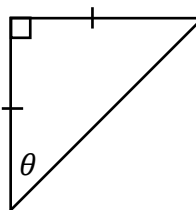


$m\angle X = \underline{\hspace{2cm}}$

$\sin(Y) = \underline{\hspace{2cm}}$

$\cos(Y) = \underline{\hspace{2cm}}$

6.

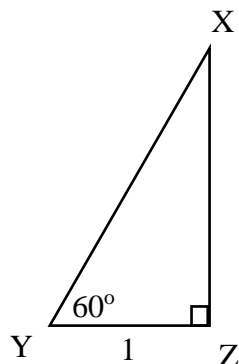


$\theta = \underline{\hspace{2cm}}$

$\cos(\theta) = \underline{\hspace{2cm}}$

$\tan(\theta) = \underline{\hspace{2cm}}$

7.

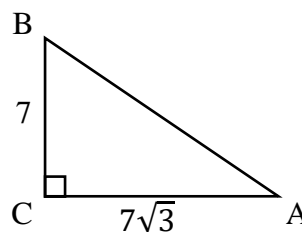


$XY = \underline{\hspace{2cm}}$

$\cos(Y) = \underline{\hspace{2cm}}$

$\tan(Y) = \underline{\hspace{2cm}}$

8.



$m\angle B = \underline{\hspace{2cm}}$

$\sin(B) = \underline{\hspace{2cm}}$

$\tan(A) = \underline{\hspace{2cm}}$

Rapid Practice

Find the indicated values *without* using a calculator. A picture may be helpful, but no work is required.

****Hint**** Refer to the chart in the notes

9. $\sin(30^\circ) =$

10. $\cos(30^\circ) =$

11. $\tan(60^\circ) =$

12. $\sin(45^\circ) =$

13. $\tan(\theta) = 1$ $\theta = ?$

14. $\tan(\theta) = \frac{\sqrt{3}}{3}$ $\theta = ?$

15. $\cos(\theta) = \frac{\sqrt{2}}{2}$ $\theta = ?$

16. $\sin(\theta) = \frac{\sqrt{3}}{2}$ $\theta = ?$