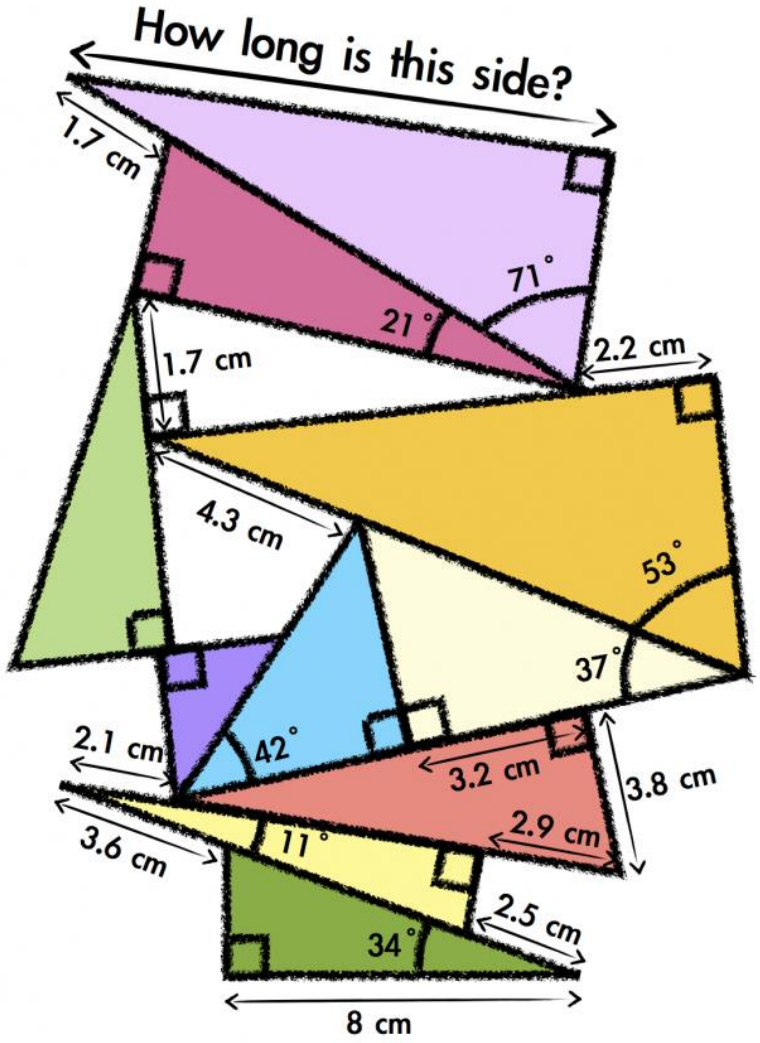
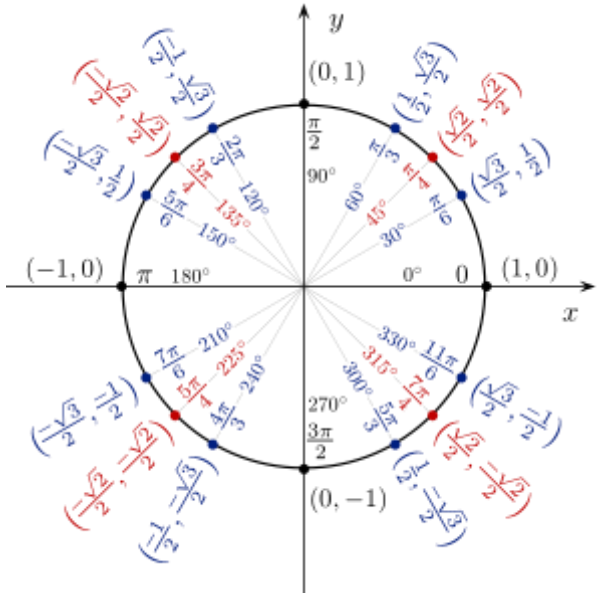
Trigonometry Pile Up!



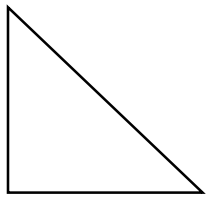
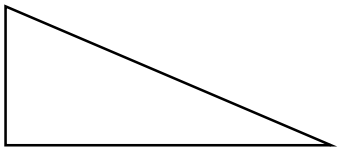
Unit 6

Right Triangle Trigonometry

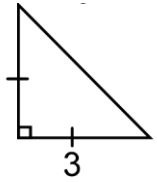


6.1 Special Right Triangles

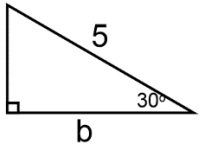
EQ:

45-45-90	**30-60-90**
	

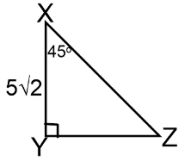
Ex. 1 Find each side length



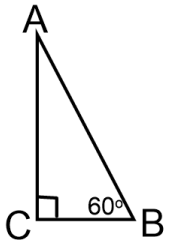
Ex. 2 Solve for b.



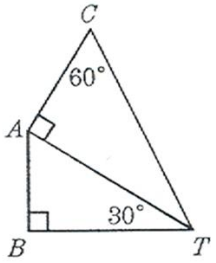
Ex. 3 Find XZ



Ex. 4 If AC=5, find the length of AB.



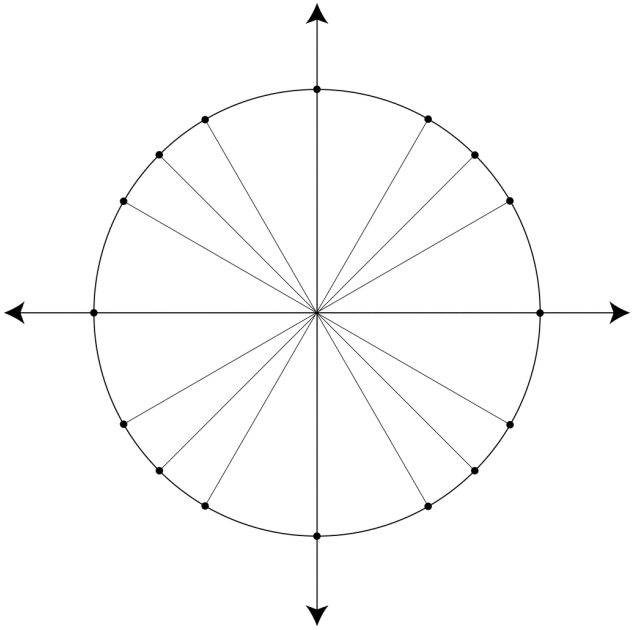
Ex. 5



If $BT = 2\sqrt{3}$, find the length of CT

6.8 The Unit Circle

EQ:



Quadrant Border Angles

6.7 Exact Values

EQ:

$\sin 30^o$

1. $\cos 30^o$

$\tan 30^o$

2. $\sin 120^o$

3. $\cot\left(-135^o\right)$

4.

Steps to find an exact value.

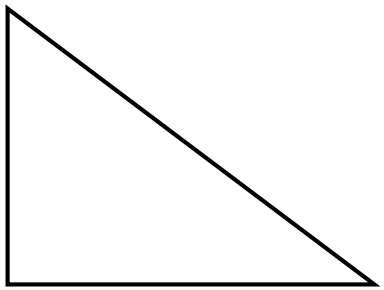
1.
2.
3.
4.
5.

RECALL:

4. $\csc\dfrac{11\pi}{6}$

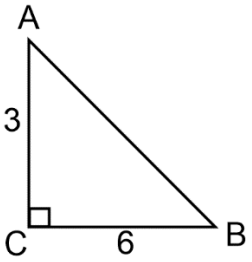
6.2 Trig Review & using the Calculator

EQ:



Reciprocal Trig Identities

Ex. 1



$\sin A =$

$\cos B =$

$\cot A =$

$\sin B =$

$\csc B =$

Ex 2. If $\sec\theta = \dfrac{5}{3}$, what is $\cot\theta$?

Use a calculator in degree mode to find the indicated function value to three decimals.

3. sin48°

4. csc7.5°

Find the degree measure of acute angle theta correct to 3 decimal places.

5. $\sin\theta = 0.873$

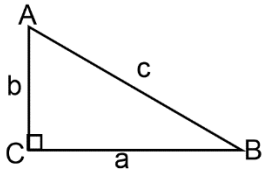
6. $\sec\theta = 1.689$

6.3 Trig Applications

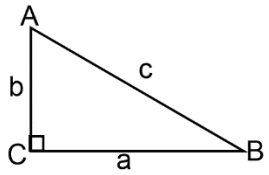
EQ:

Find all missing sides & angles.

1. $b = 5$
   $m\angle B = 38^o$



2. $a = 4$
   $c = 15$



Angle of Elevation/Depression

3. A bird sits on top of a lamppost. The angle of depression from the bird to the feet of an observer standing 25m away is 35°. How tall is the lamppost?

4. Buildings A and B are across the street from each other, 35m apart. From a point on the roof of Building A the angle of elevation of the top of Building B is 24° and the angle of depression of the base of Building B is 34°. How tall is each building?

Angular & Linear Velocity

$$\omega = \frac{\theta}{t} \qquad v = \omega r$$

A belt runs a pulley of radius 6cm at 80 revolutions per minute.

a. Find the angular velocity of the pulley in radians per second.

b. Find the linear velocity of the belt in centimeters per second.

6.5 Radians

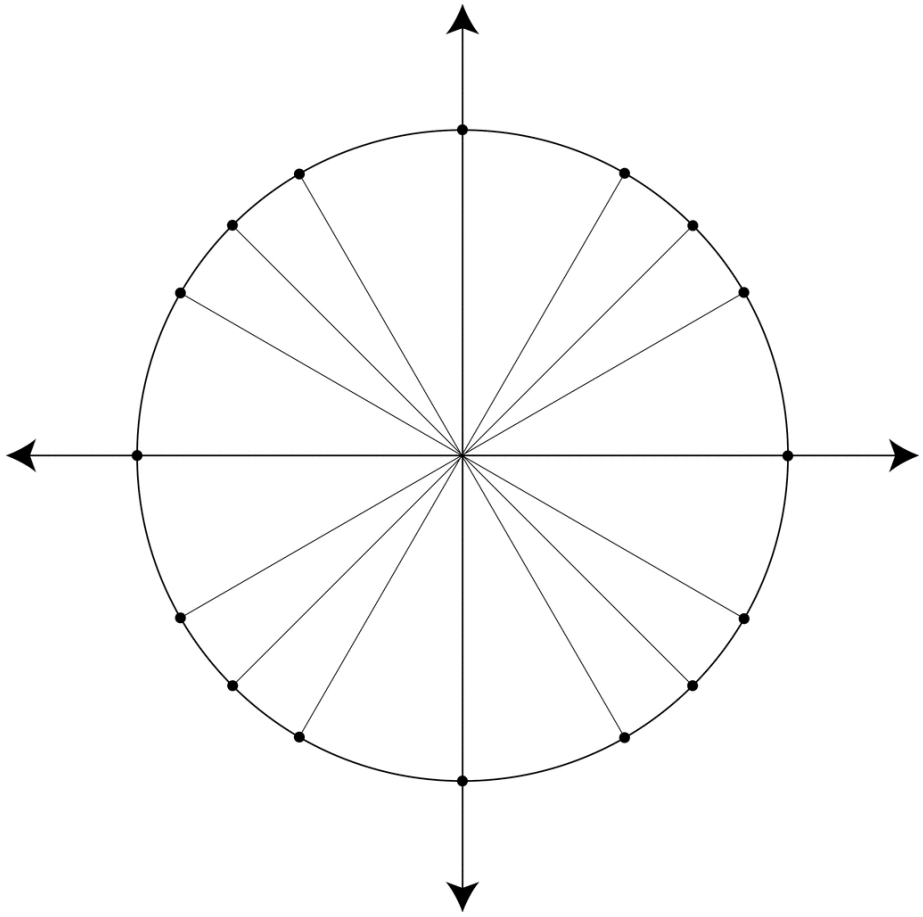
EQ:

Radian: A unit of angle measurement equal to the angle at the center of a circle whose arc is equal to the length of the radius.

Coterminal angles...

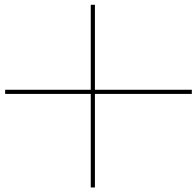
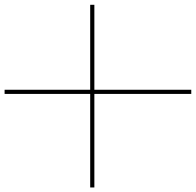
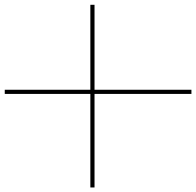
Ex. $\frac{\pi}{6}$

Convert degrees to radians	Convert radians to degrees



Graphing angles in radians

Ex. $\frac{\pi}{3}$ ex. $-\frac{15\pi}{8}$ ex. $\frac{18\pi}{7}$

6.6 Radians Day 2 (Reference Angles)

EQ:

Draw the terminal side of each angle and find the corresponding reference angle.

1. $\frac{4\pi}{9}$

Step 1.

Step 2.

Step 3.

Step 4.

2. $-\frac{5\pi}{8}$

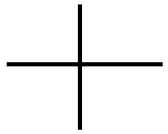
3. $\frac{19\pi}{6}$

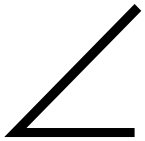
4. $\frac{23\pi}{13}$

5. $-\frac{11\pi}{3}$

6.4 Angle Measure

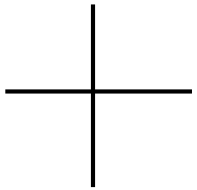
EQ:



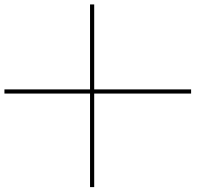


Sketch a graph of each angle.

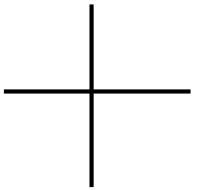
1. 137°



2. -60°



3. -137°



Coterminal Angles –

4. Find 3 angles that are coterminal to 20°.

Reference Angles –

Find the reference angle for each of the following.

5. 50°

6. 130°

7. -120°

8. 705°

9. Find the exact values of the six trig function of an angle whose terminal side passes through the point (-4,3).