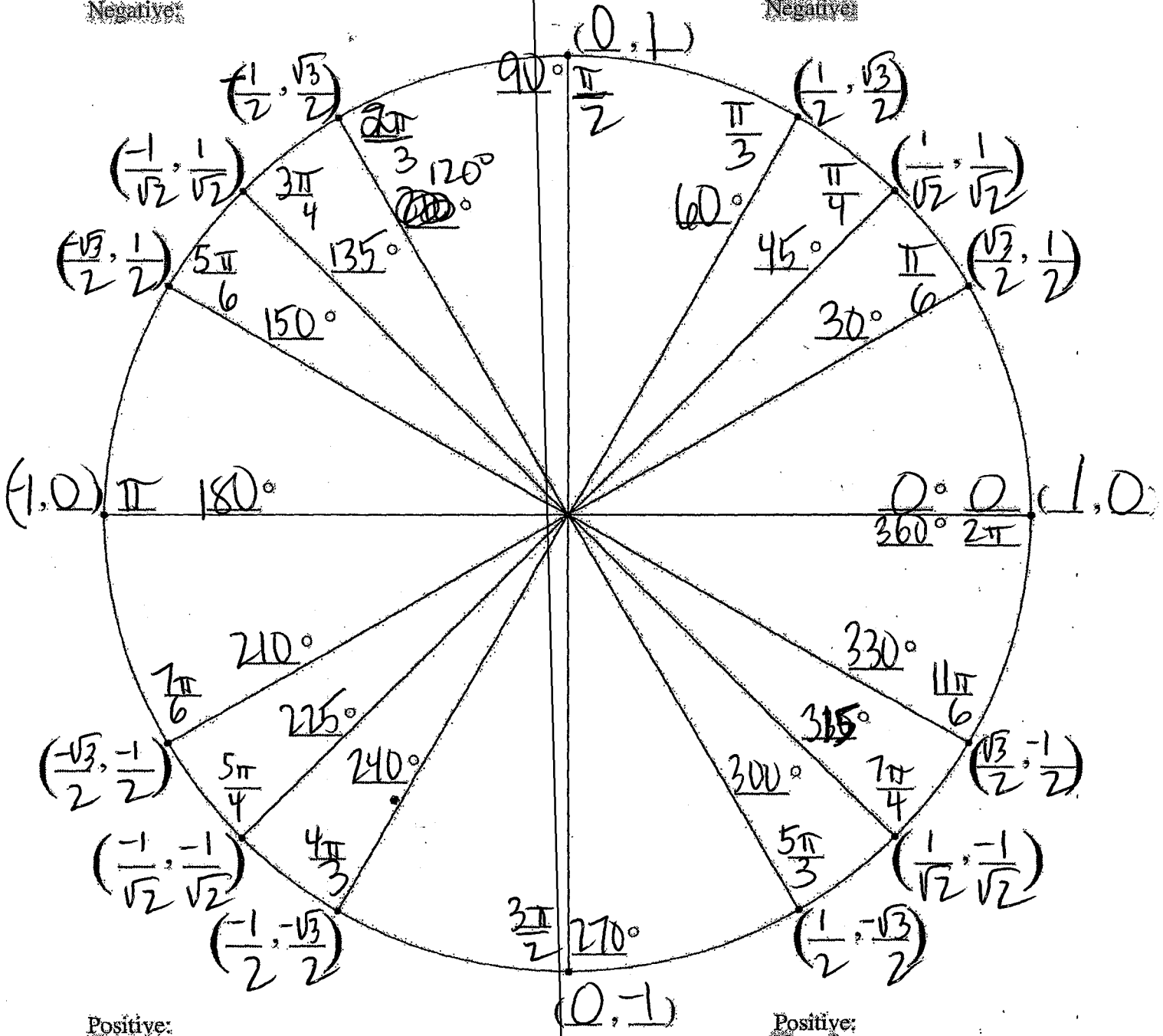


Fill in The Unit Circle

Key

Positive:
Negative:

Positive:
Negative:



Positive:
Negative:

Positive:
Negative:

EmbeddedMath.com

Use Unit Circle + Special Right Δ s

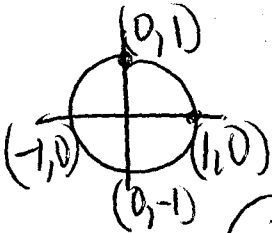
Student Name: _____

Key

Score: _____

100%

(I hope!)



Find the exact value of a given trigonometric ratio

$$\sin \frac{\pi}{2} =$$

1

$$\cos \frac{\pi}{2} =$$

0

$$\tan \frac{\pi}{6} =$$

$\frac{1}{\sqrt{3}}$

$$\sin \frac{\pi}{3} =$$

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

$$\cot 0 =$$

undefined

$$\sec \frac{\pi}{4} =$$

$\sqrt{2}$

$$\csc \frac{\pi}{6} = \frac{1}{\sin \frac{\pi}{6}} =$$

2

$$\tan \frac{\pi}{2} =$$

undefined

$$\cos \frac{\pi}{4} =$$

$\frac{1}{\sqrt{2}}$

$$\cos \frac{\pi}{3} =$$

$\frac{1}{2}$

$$\csc \frac{\pi}{4} =$$

$\sqrt{2}$

$$\tan \frac{\pi}{4} =$$

1

$$\tan 0 =$$

0

$$\cos \frac{\pi}{6} =$$

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

$$\sec \frac{\pi}{2} =$$

undefined

$$\cot \frac{\pi}{2} = \frac{0}{1} =$$

0

$$\csc \frac{\pi}{3} =$$

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

$$\sin \frac{\pi}{6} =$$

$\frac{1}{2}$

$$\sec \frac{\pi}{6} =$$

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

$$\tan \frac{\pi}{3} =$$

$\sqrt{3}$

$$\csc \frac{\pi}{2} =$$

1

$$\cot \frac{\pi}{4} =$$

1

$$\sec \frac{\pi}{3} =$$

2

$$\cot \frac{\pi}{6} =$$

$\sqrt{3}$

60° 45°
30° 60°
30° 60°

Name Key
 te _____

Finding the angles!

I. First practice the old stuff, given the angle, you find the EXACT trig value:

1. $\cos(-135) = -\cos 45 = \boxed{-\frac{1}{\sqrt{2}}}$

2. $\sin(120) = \sin 60 = \boxed{\frac{\sqrt{3}}{2}}$

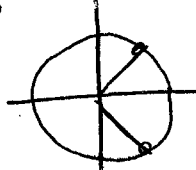
3. $\tan(-210) = -\tan 30 = \boxed{-\frac{1}{\sqrt{3}}}$

4. $\tan(450) = \tan(90) = \frac{1}{0} = \boxed{\text{undefined}}$

5. $\cos(300) = \cos 60 = \boxed{\frac{1}{2}}$

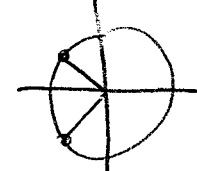
II. Now, solve the following trig equations, by finding all angles between 0° and 360° , which satisfy the following:

A) $\cos \theta = \frac{1}{2}$
 $\theta = \text{ref } \theta = 60^\circ$



I: 60°
 IV: 300°

B) $\cos \theta = -\frac{1}{2}$



II: $180 - 60 = 120^\circ$
 III: $180 + 60 = 240^\circ$

C) $\tan \theta = \frac{\sqrt{3}}{3}$
 $\text{ref } \theta = 30^\circ$

I: 30°
 III: 210°

D) $\sin \theta = .22456$
 $\text{ref } \theta = \sin^{-1}(.22456) = 13^\circ$

E) $\cos \theta = -.3213$
 $\text{ref } \theta = \cos^{-1}(.3213) = 71^\circ$

leave off neg. when finding ref θ .

II: 167°
 III: 251°

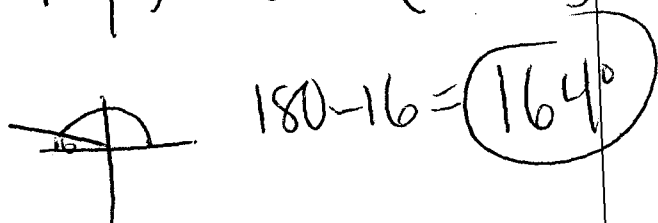
E) $\sin \theta = -.22456$
 Same ref $\theta = 13^\circ$

II: 193°
 IV: 347°

III. Now try these: For each indicated value and quadrant, find the angle θ to the nearest degree:

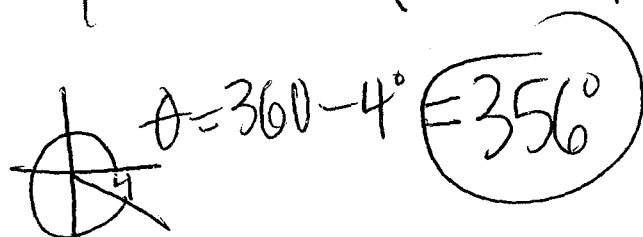
1. $\sin\theta = .2756$, QII

Ref $\angle = \sin^{-1}(.2756) = 16^\circ$



2. $\tan\theta = -.0698$, QIV

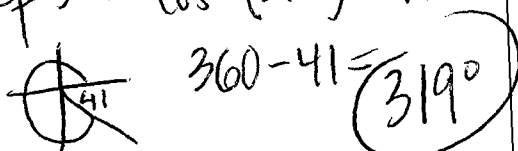
Ref $\angle = \tan^{-1}(-.0698) = 4^\circ$



leave off neg. when finding ref \angle

3. $\cos\theta = .75$, QIV

Ref $\angle = \cos^{-1}(.75) = 41^\circ$



4. $\sin\theta = -.35$, QIII

Ref $\angle = \sin^{-1}(.35) = 20^\circ$



V. Finding the angle from a point on the Unit Circle:

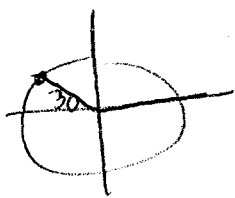
Find the angle of rotation from standard position, for the following points on the unit circle:

a)

$(\frac{-\sqrt{3}}{2}, \frac{1}{2})$

$\cos\theta = \frac{-\sqrt{3}}{2}$

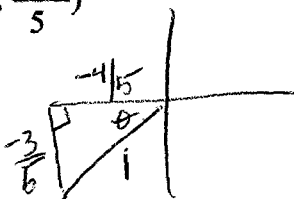
$\sin\theta = \frac{1}{2}$



150°

b)

$(\frac{-4}{5}, \frac{-3}{5})$



$\cos\theta = \frac{-4}{5}$

$\theta = \cos^{-1}(\frac{-4}{5}) = 37^\circ$

$180 + 37$

217°

