 Name_____

Degrees & Radians Conversion Practice

Conversion Factors

$$Degrees \times \frac{\pi}{180^\circ} = Radians$$

$$Radians \times \frac{180^\circ}{\pi} = Degrees$$

Convert each degree measure into radians.

1) -290°

2) 345°

3) 970°

4) -510°

5) 510°

6) 150°

7) 210°

8) -240°

9) 240°

10) 600°

11) -945°

12) 675°

13) 315°

14) 570°

15) -520°

16) 40°

17) 300°

18) 0°

19) 555°

20) 165°

Convert each radian measure into degrees.

21) $\frac{\pi}{18}$

22) $-\frac{25\pi}{12}$

23) $\frac{35\pi}{18}$

24) $\frac{41\pi}{36}$

25) $-\frac{3\pi}{2}$

26) $\frac{107\pi}{36}$

27) $\frac{\pi}{3}$

28) $-\frac{17\pi}{9}$

29) $-\frac{11\pi}{3}$

30) $-\frac{41\pi}{12}$

31) $\frac{14\pi}{3}$

32) $-\frac{16\pi}{3}$

33) $\frac{21\pi}{4}$

34) $-\frac{13\pi}{4}$

35) $\frac{7\pi}{4}$

36) $\frac{11\pi}{6}$

37) $\frac{13\pi}{6}$

38) $\frac{7\pi}{3}$

39) $-\frac{\pi}{3}$

40) $\frac{3\pi}{4}$

Convert each degree measure into radians and each radian measure into degrees.

41) $-\frac{\pi}{6}$

42) $-\frac{23\pi}{6}$

43) -30°

44) -930°

45) -210°

46) $\frac{\pi}{4}$

47) -160°

48) $-\frac{\pi}{3}$

49) $\frac{11\pi}{6}$

50) $\frac{17\pi}{12}$

51) 915°

52) $\frac{\pi}{2}$

53) -105°

54) $\frac{4\pi}{9}$

55) $\frac{7\pi}{2}$

56) $\frac{31\pi}{9}$

57) 230°

58) $-\frac{13\pi}{6}$

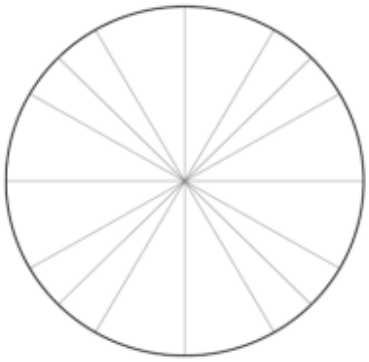
59) -170°

60) 660°

Exact Trigonometric Values

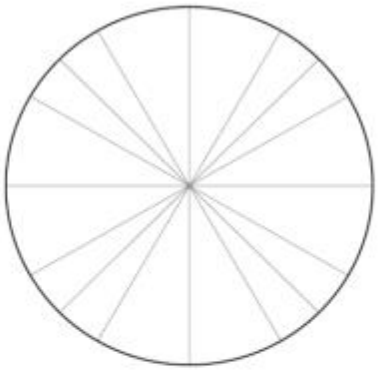
	30°	45°	60°
sinθ			
cosθ			
tanθ			

1. Inscribe a 30°-60°-90° triangle in each quadrant of the unit circle with the 30° angle as the angle of rotation. For each triangle, indicate the signed lengths for all three sides. Complete the table below using the signed lengths.



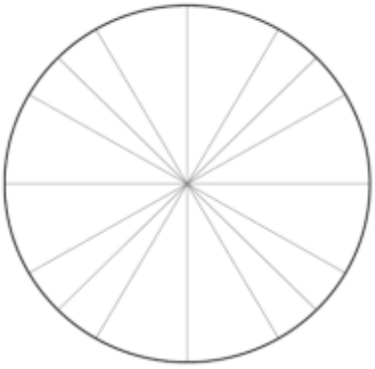
	Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Angle of Rotation, θ	30°			
$\sin\theta$	$\frac{1}{2}$			
$\cos\theta$	$\frac{\sqrt{3}}{2}$			
$\tan\theta$	$\frac{\sqrt{3}}{3}$			

2. Inscribe a 45°-45°-90° triangle in each quadrant of the unit circle with the 45° angle as the angle of rotation. For each triangle, indicate the signed lengths for all three sides. Complete the table below using the signed lengths.



	Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Angle of Rotation, θ	45°			
$\sin\theta$	$\frac{\sqrt{2}}{2}$			
$\cos\theta$	$\frac{\sqrt{2}}{2}$			
$\tan\theta$	1			

3. Inscribe a 30°-60°-90° triangle in each quadrant of the unit circle with the 60° angle as the angle of rotation. For each triangle, indicate the signed lengths for all three sides. Complete the table below using the signed lengths.



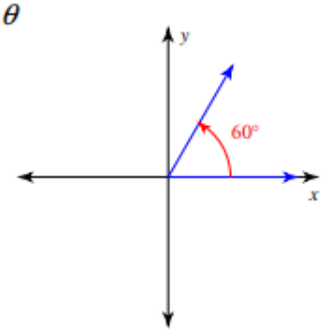
	Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Angle of Rotation, θ	60°			
$\sin\theta$	$\frac{\sqrt{3}}{2}$			
$\cos\theta$	$\frac{1}{2}$			
$\tan\theta$	$\sqrt{3}$			

Exact Trig Values of Special Angles

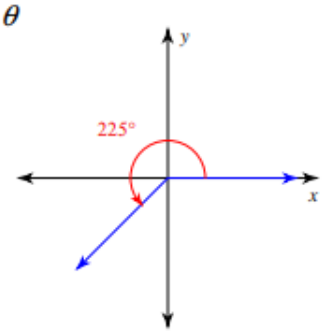
Date_____ Period____

Find the exact value of each trigonometric function.

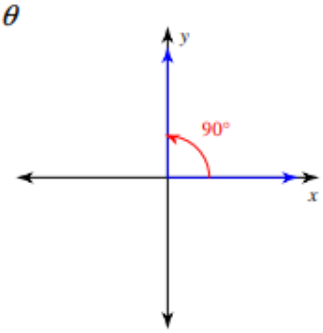
1) tan θ



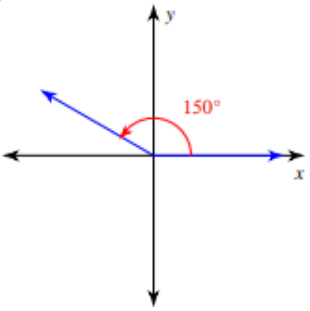
2) sin θ



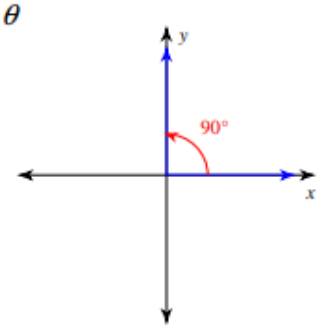
3) sin θ



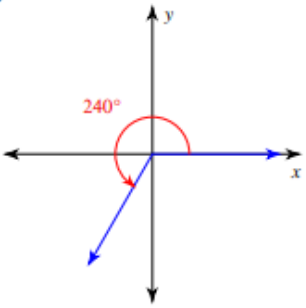
4) cos θ



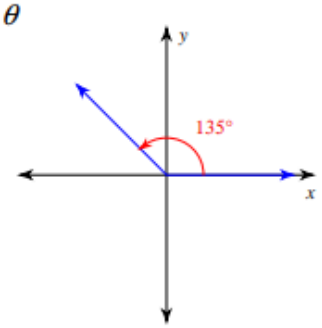
5) cos θ



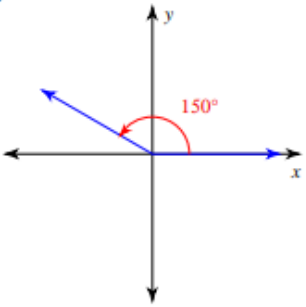
6) tan θ



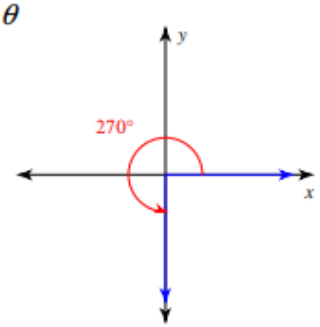
7) cos θ



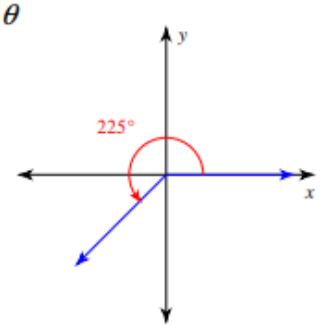
8) tan θ



9) $\cos\theta$



10) $\tan\theta$



11) $\cos 270°$

12) $\sin 0$

13) $\cot\frac{7\pi}{4}$

14) $\csc\frac{2\pi}{3}$

15) $\csc 225°$

16) $\sin 300°$

17) $\csc 90°$

18) $\tan 240°$

19) $\sin\frac{\pi}{4}$

20) $\tan 120°$

21) $\tan -\frac{13\pi}{6}$

22) $\cos -630°$

23) $\cos 990°$

24) $\csc -\frac{31\pi}{6}$

25) $\csc -\frac{5\pi}{6}$

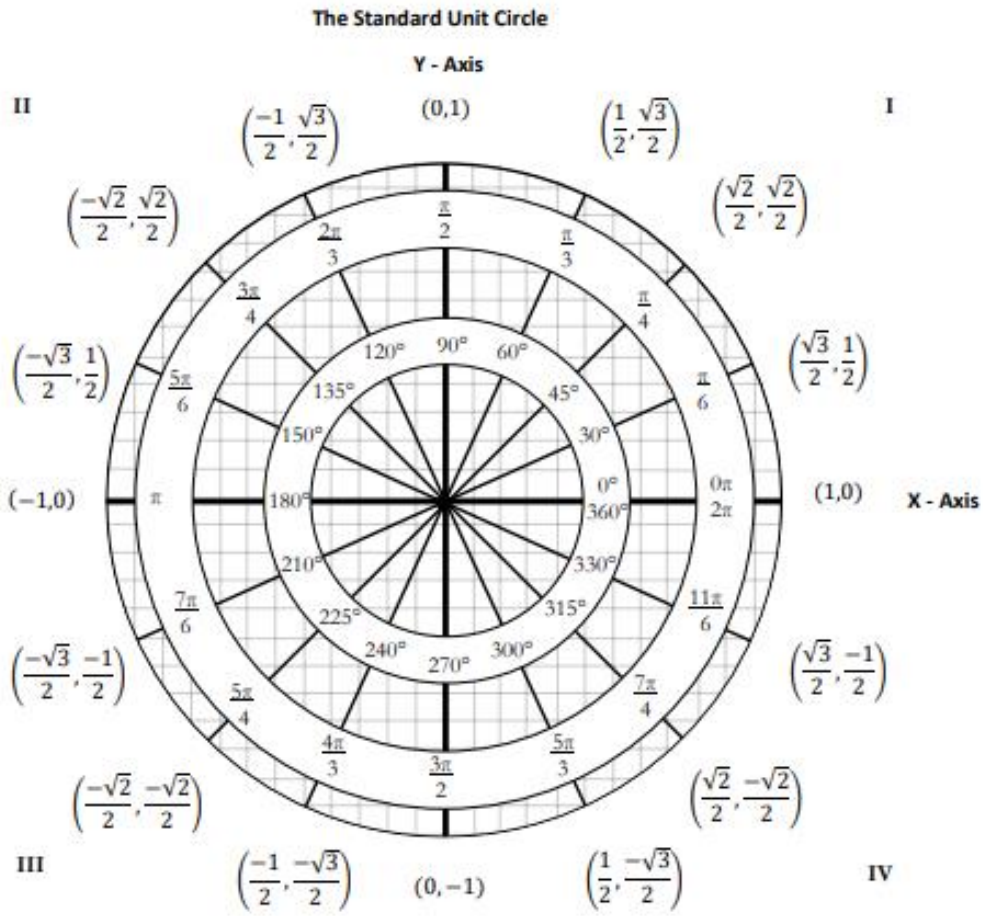
26) $\cos -\frac{17\pi}{3}$

27) $\sin\frac{29\pi}{6}$

28) $\sec 945°$

29) $\cos -\frac{11\pi}{2}$

30) $\sin -2\pi$



Key: $(\mathbf{Cos(\theta)}, \mathbf{Sin(\theta)})$

$$\boldsymbol{Tan(\theta)} = \frac{\mathbf{Sin(\theta)}}{\mathbf{Cos(\theta)}}$$

NO CALCULATORS!!

Using the unit circle, find the exact value of each trigonometric function.

1. $\cos 300°$

2. $\sin 135°$

3. $\tan 135°$

4. $\cos 150°$

5. $\cos(-120°)$

6. $\sin(-300°)$

7. $\sin(-45°)$

8. $\sin 60°$

9. $\tan(-240°)$

10. $\tan(-30°)$

11. $\tan 240°$

12. $\cos(-330°)$

Using the unit circle, find the exact value of each trigonometric function.

1. $\sin\frac{2\pi}{3}$
2. $\tan\frac{11\pi}{6}$
3. $\cos\frac{7\pi}{4}$
4. $\tan\frac{4\pi}{3}$
5. $\sin\frac{7\pi}{6}$
6. $\cos\frac{5\pi}{3}$
7. $\tan\frac{3\pi}{4}$
8. $\sin\left(-\frac{5\pi}{3}\right)$
9. $\cos\left(-\frac{5\pi}{4}\right)$
10. $\tan\frac{\pi}{3}$
11. $\sin\left(-\frac{7\pi}{4}\right)$
12. $\cos\left(-\frac{5\pi}{6}\right)$

Using the unit circle, find the exact value of each trigonometric function. **NO CALCULATORS!!**

1. $\tan\frac{9\pi}{4}$
2. $\sin\left(-\frac{17\pi}{3}\right)$
3. $\sin(-390°)$
4. $\cos 3\pi$
5. $\tan(-90°)$
6. $\sin\pi$
7. $\cos\frac{13\pi}{3}$
8. $\tan(-765°)$
9. $\cos\frac{17\pi}{4}$
10. $\tan(-600°)$
11. $\sin\left(-\frac{11\pi}{3}\right)$
12. $\sin(-90°)$
13. $\cos(-630°)$
14. $\tan\frac{29\pi}{6}$
15. $\sin\frac{5\pi}{3}$
16. $\tan 5\pi$
17. $\cos(-960°)$
18. $\tan\left(-\frac{5\pi}{2}\right)$
19. $\sin\frac{8\pi}{3}$
20. $\cos(-5\pi)$