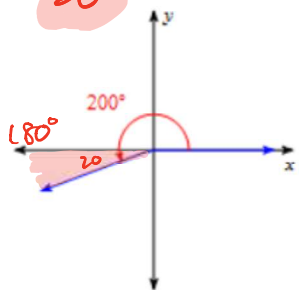
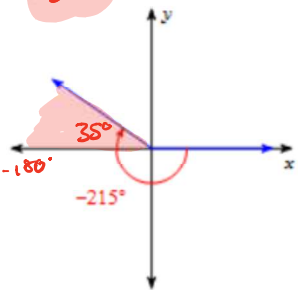
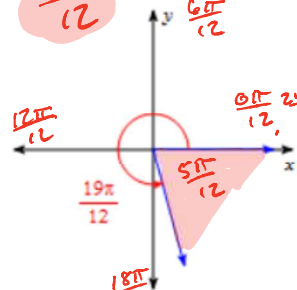
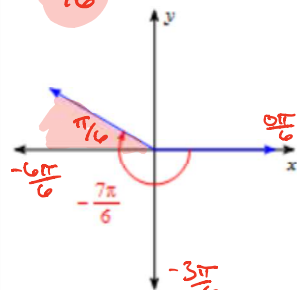
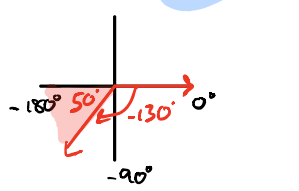
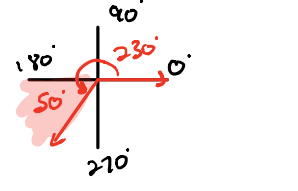
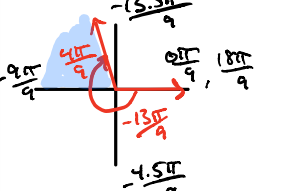
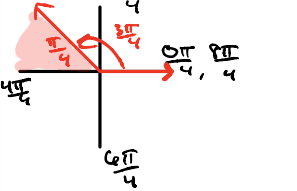


The Trigonometric Functions

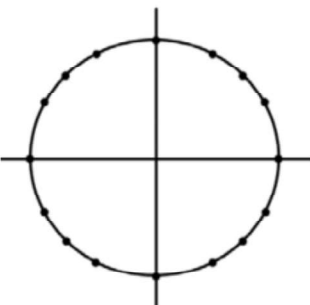
18.4 – Reference & Special Angles

Name _____

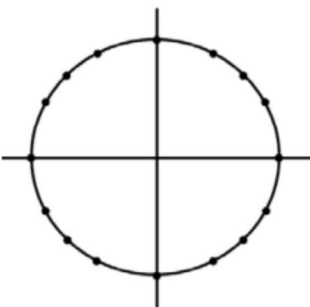
Find the reference angle.

1. 20° 	2. 35° 	3. $\frac{5\pi}{12}$ 	4. $\frac{\pi}{6}$ 
5. -130° 50° 	6. 230° 50° 	7. $-\frac{13\pi}{9}$ $\frac{4\pi}{9}$ 	8. $\frac{3\pi}{4}$ $\frac{\pi}{4}$ 

Find the exact value.

9. $\sin 90^\circ = 1$	10. $\cos 120^\circ = -\frac{1}{2}$	11. $\tan 45^\circ = 1$	
12. $\tan 120^\circ = \frac{\sqrt{3}}{-\frac{1}{2}} = -\sqrt{3}$	13. $\cos 225^\circ = -\frac{\sqrt{2}}{2}$	14. $\sin 135^\circ = \frac{\sqrt{2}}{2}$	
15. $\sin 330^\circ = -\frac{1}{2}$	16. $\tan 315^\circ = -1$	17. $\cos 240^\circ = -\frac{1}{2}$	
18. $\sin(-225^\circ) = \frac{\sqrt{2}}{2}$	19. $\cos(-240^\circ) = -\frac{1}{2}$	20. $\tan(-300^\circ) = \frac{\sqrt{3}}{1} = \sqrt{3}$	

Find the exact value.

24. $\sin \frac{\pi}{2} = 1$	25. $\tan \frac{\pi}{4} = 1$	26. $\cos \frac{3\pi}{2} = 0$	
27. $\cos \frac{4\pi}{3} = -\frac{1}{2}$	28. $\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$	29. $\tan \pi = 0$	
30. $\sin \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$	31. $\cos \frac{5\pi}{3} = \frac{1}{2}$	32. $\sin \frac{5\pi}{6} = \frac{1}{2}$	
33. $\tan \frac{7\pi}{4} = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\sqrt{3}$	34. $\sin(-\pi) = 0$	35. $\tan\left(-\frac{3\pi}{2}\right) = \text{und}$	
36. $\cos\left(-\frac{\pi}{3}\right) = \frac{1}{2}$		38. $\sin\left(-\frac{5\pi}{4}\right) = \frac{\sqrt{2}}{2}$	

The Trigonometric Functions

18.4 – Reference & Special Angles

Name _____

If $0^\circ \leq \theta \leq 360^\circ$, then find θ

39. $\sin \theta = \frac{1}{2}$ $\theta = 30^\circ, 150^\circ$	40. $\cos \theta = \frac{\sqrt{3}}{2}$ $\theta = 30^\circ, 330^\circ$	41. $\tan \theta = -\sqrt{3}$ $\theta = 120^\circ, 300^\circ$
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If you like pictures of circles, you can draw one here!

42. $\sin \theta = \frac{\sqrt{2}}{2}$ $\theta = 45^\circ, 135^\circ$	43. $\cos \theta = -\frac{\sqrt{2}}{2}$ $\theta = 135^\circ, 225^\circ$	44. $\tan \theta = -\frac{\sqrt{3}}{3}$ $\theta = 150^\circ, 330^\circ$
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If $0\pi \leq \theta \leq 2\pi$, then find θ

48. $\sin \theta = \frac{\sqrt{3}}{2}$ $\theta = \frac{\pi}{3}, \frac{2\pi}{3}$	49. $\tan \theta = 1$ $\theta = \frac{\pi}{4}, \frac{5\pi}{4}$	50. $\cos \theta = \frac{\sqrt{2}}{2}$ $\theta = \frac{\pi}{4}, \frac{7\pi}{4}$
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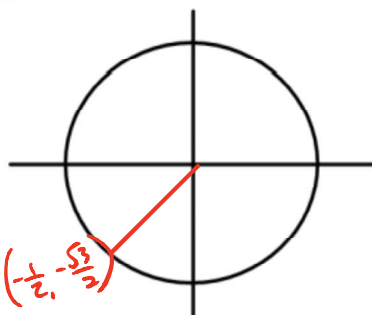
If you like pictures of circles, you can draw one here!

51. $\cos \theta = -\frac{1}{2}$ $\theta = \frac{2\pi}{3}, \frac{4\pi}{3}$	52. $\tan \theta = \sqrt{3}$ $\theta = \frac{\pi}{3}, \frac{4\pi}{3}$	53. $\cos \theta = 0$ $\theta = \frac{\pi}{2}, \frac{3\pi}{2}$
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56. $\sin \theta = -\frac{1}{2}$ $\theta = \frac{7\pi}{6}, \frac{11\pi}{6}$
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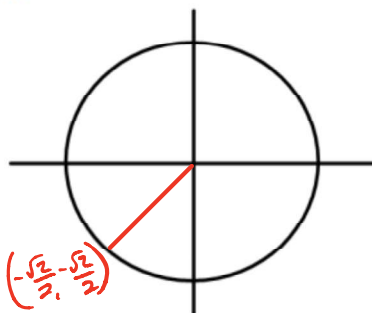
57. Fill in the table below.



$$\tan \theta = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \sqrt{3}$$

degrees	radians	$\sin \theta$	$\cos \theta$	$\tan \theta$		- degree	- radian
240°	$\frac{4\pi}{3}$	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$\sqrt{3}$		-120°	$-\frac{2\pi}{3}$

58. Fill in the table below.



degrees	radians	$\sin \theta$	$\cos \theta$	$\tan \theta$		degree	- radian
225°	$\frac{5\pi}{4}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	1		-135°	$-\frac{3\pi}{4}$