

SCORE: _____ /18

NAME: _____

DATE: ____/____/____ HR: ____

ALG 2B – LESSON 13:3 - “ THE UNIT CIRCLE DAY 2”

Use a reference angle to find the exact value of the sine, cosine, and tangent of each angle.

14. 240°

15. 120°

16. $\frac{7\pi}{4}$

17. $\frac{\pi}{3}$

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| $\sin \theta =$ |
| $\cos \theta =$ |
| $\tan \theta =$ |

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| $\sin \theta =$ |
| $\cos \theta =$ |
| $\tan \theta =$ |

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| $\sin \theta =$ |
| $\cos \theta =$ |
| $\tan \theta =$ |

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| $\sin \theta =$ |
| $\cos \theta =$ |
| $\tan \theta =$ |

18. **Engineering** An engineer is designing a curve on a highway. The curve will be an arc of a circle with a radius of 1260 ft. The central angle that intercepts the curve will measure $\frac{\pi}{6}$ radians. To the nearest foot, what will be the length of the curve?

Use the unit circle to find the exact value of each trigonometric function.

27. $\tan 300^\circ$

28. $\sin 120^\circ$

29. $\cos \frac{5\pi}{6}$

30. $\sec \frac{\pi}{3}$

Use a reference angle to find the exact value of the sine, cosine, and tangent of each angle.

31. 225°

32. 135°

33. $\frac{11\pi}{6}$

34. $-\frac{5\pi}{6}$

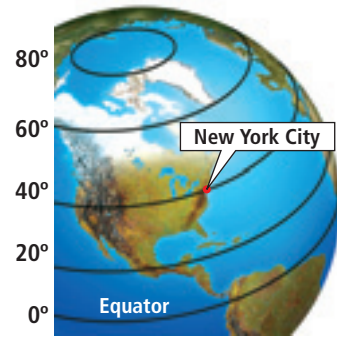
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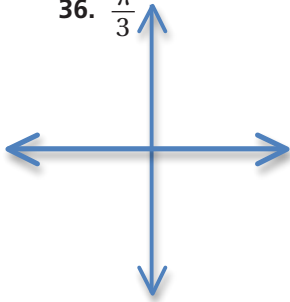
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| $\sin \theta =$ |
| $\cos \theta =$ |
| $\tan \theta =$ |

35. **Geography** New York City is located about 40° north of the equator. If Earth's radius is about 4000 miles, approximately how many miles south would a plane need to fly from New York City to reach the equator?

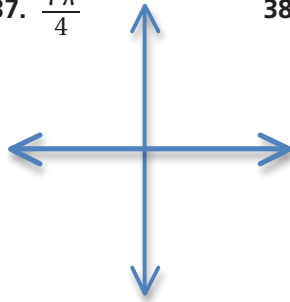


Draw an angle with the given measure in standard position.
Then determine the measure of its reference angle.

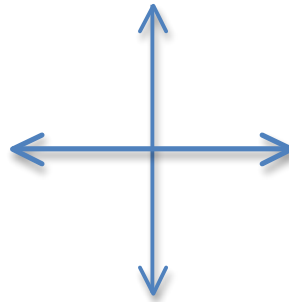
36. $\frac{\pi}{3}$



37. $\frac{7\pi}{4}$



38. $\frac{5\pi}{6}$



39. **Electronics** A DVD rotates through an angle of 20π radians in 1 second. At this speed, how many revolutions does the DVD make in 1 minute?