

Name: _____

Date: _____

Section A: Converting Between Degrees and Radians

Convert each angle measurement. Express all radian answers in terms of π .

1. Convert 30° to radians.

7. Convert $\frac{\pi}{4}$ to degrees.

2. Convert 135° to radians.

8. Convert $\frac{2\pi}{3}$ to degrees.

3. Convert 210° to radians.

9. Convert $\frac{5\pi}{6}$ to degrees.

4. Convert 270° to radians.

10. Convert $\frac{4\pi}{3}$ to degrees.

5. Convert 315° to radians.

11. Convert $\frac{7\pi}{4}$ to degrees.

6. Convert -120° to radians.

12. Convert $-\frac{5\pi}{6}$ to degrees.

Section B: Identifying Quadrants and Terminal Points

Identify the quadrant in which the terminal side of each angle lies, and state the (x, y) coordinates on the unit circle.

13. $\theta = 120^\circ$

Quadrant: _____**Coordinates:** (_____, _____)

16. $\theta = \frac{3\pi}{2}$

Quadrant/Axis: _____**Coordinates:** (_____, _____)

14. $\theta = \frac{7\pi}{6}$

Quadrant: _____**Coordinates:** (_____, _____)

17. $\theta = \frac{5\pi}{3}$

Quadrant: _____**Coordinates:** (_____, _____)

15. $\theta = 315^\circ$

Quadrant: _____**Coordinates:** (_____, _____)

18. $\theta = 225^\circ$

Quadrant: _____**Coordinates:** (_____, _____)

Section C: Determining Signs of Trigonometric Functions

Evaluate the trigonometric function and indicate whether each expression evaluates to a **Positive (+)** or **Negative (-)** value.

19. $\sin(150^\circ)$ Sign: _____ 24. $\cot(300^\circ)$ Sign: _____

20. $\cos\left(\frac{4\pi}{3}\right)$ Sign: _____ 25. $\cos\left(\frac{11\pi}{6}\right)$ Sign: _____

21. $\tan(315^\circ)$ Sign: _____ 26. $\sin(240^\circ)$ Sign: _____

22. $\sec(210^\circ)$ Sign: _____ 27. $\tan\left(\frac{2\pi}{3}\right)$ Sign: _____

23. $\csc\left(\frac{3\pi}{4}\right)$ Sign: _____ 28. $\sec(135^\circ)$ Sign: _____

Section D: Evaluating Primary Trigonometric Functions (sin, cos, tan)

Find the exact value of each expression. Simplify radicals and rationalize denominators.

29. $\sin\left(\frac{\pi}{6}\right) =$

35. $\sin\left(\frac{3\pi}{2}\right) =$

30. $\cos(120^\circ) =$

36. $\cos(180^\circ) =$

31. $\tan\left(\frac{3\pi}{4}\right) =$

37. $\tan\left(\frac{7\pi}{6}\right) =$

32. $\sin(240^\circ) =$

38. $\sin(300^\circ) =$

33. $\cos\left(\frac{7\pi}{4}\right) =$

39. $\cos\left(\frac{5\pi}{6}\right) =$

34. $\tan(330^\circ) =$

40. $\tan(225^\circ) =$

Section E: Evaluating Reciprocal Trigonometric Functions (sec, csc, cot)

Find the exact value of each expression. Simplify radicals and rationalize denominators.

41. $\sec\left(\frac{\pi}{3}\right) =$

47. $\sec\left(\frac{3\pi}{4}\right) =$

42. $\csc(135^\circ) =$

48. $\csc(210^\circ) =$

43. $\cot\left(\frac{7\pi}{6}\right) =$

49. $\cot\left(\frac{2\pi}{3}\right) =$

44. $\sec(240^\circ) =$

50. $\sec(0^\circ) =$

45. $\csc\left(\frac{5\pi}{3}\right) =$

51. $\csc\left(\frac{3\pi}{2}\right) =$

46. $\cot(315^\circ) =$

52. $\cot(90^\circ) =$

Section F: Mixed Review & Negative/Coterminal Angles

Evaluate the exact value of each trigonometric expression using reference angles or coterminal concepts. Show your work.

53. $\sin(-45^\circ) =$

57. $\csc(-120^\circ) =$

54. $\cos\left(-\frac{2\pi}{3}\right) =$

58. $\cot\left(-\frac{3\pi}{4}\right) =$

55. $\tan(405^\circ) =$

59. $\cos(480^\circ) =$

56. $\sec\left(\frac{11\pi}{6}\right) =$

60. $\sin\left(\frac{9\pi}{4}\right) =$