Unit 7: Trigonometric Functions

ADVANCED

Name: _____ Date: _____

Evaluate each expression exactly using the unit circle and special angles. Give exact values (fractions, radicals like sqrt(3)/2, or coordinate pairs) — no decimals.

1. Evaluate sin(2pi/3) + cos(5pi/6).

Answer: _____

2. Find the exact value of tan(5pi/4) - tan(pi/6).

Answer: _____

3. The terminal point of angle θ on the unit circle is (-sqrt(2)/2, -sqrt(2)/2). Find θ in degrees, where 0° ≤ θ < 360°.

Answer: _____

4. Compute the product sin(210°) × cos(300°) × tan(135°).

Answer: _____

5. Evaluate 2 × cos^2(pi/6) - 1.

Answer: _____

6. The terminal point of angle θ lies on the unit circle in Quadrant II, and sin θ = 3/5. Find cos θ.

Answer: _____

7. Find the coordinates (cos θ, sin θ) of the terminal point on the unit circle for θ = 3pi/4.

Answer: _____

8. Evaluate cos(7pi/6) + sin(11pi/6) + tan(pi).

Answer: _____

9. Compute tan(300°) - tan(150°).

Answer: _____

10. The terminal point for θ = 5pi/3 on the unit circle is (a, b). Find the value of a - b.

Answer: _____

11. Evaluate 4 × sin(pi/6) × cos(pi/3) + tan(pi/4).

Answer: _____

12. Given cos θ = -1/2 and pi/2 < θ < pi, find the exact value of sin θ.

Answer: _____