**A point P (x,y) is given and corresponds to a real number t. Find the values of the trigonometric functions at t.**

1. P$(-\frac{15}{17}$, $\frac{8}{17})$ 2. P$(\frac{24}{25}$, $-\frac{7}{25})$

**Let P(t) be the point on the unit circle U that corresponds to t. If P(t) has the given rectangular coordinates, find (a) P(t + π) (b) P(t - π) (c) P(-t) (d) P(-t - π)**

3. $(\frac{3}{5}, \frac{4}{5})$ 4. $(-\frac{12}{13}, -\frac{5}{13})$

**Let P be the point on the unit circle U that corresponds to t. Find the coordinates of P and the exact values of the trigonometric functions of t, whenever possible.**

5. (a) 2π (b) -3π 6. (a) 3π/2 (b) -7π/2

7. (a) 9π/4 (b) -5π/4 8. (a) 5π/4 (b) -π/4

**Use a formula for negatives to find the exact value.**

9. (a) sin (-90°) (b) cos ($-\frac{3π}{4})$ (c) tan (-45°)

10. (a) cot $(-\frac{3π}{4})$ (b) sec (-180°) (c) csc $(-\frac{3π}{2})$

**Verify the identity by transforming the left-hand side into the right-hand side.**

11. sin (-x) sec (-x) = - tan x 12. csc (-x) cos (-x) = - cot x

**Complete the statement by referring to a graph of a trigonometric function.**

13. (a) As x 0+, sin x \_\_\_\_\_\_\_ (b) As x (-π/2)-, sin x \_\_\_\_\_\_\_

14. (a) As x π+, sin x \_\_\_\_\_\_\_ (b) As x (π/6)-, sin x \_\_\_\_\_\_\_

15. (a) As x (π/4)+, cos x \_\_\_\_\_\_\_ (b) As x π-, cos x \_\_\_\_\_\_\_

**Refer to the graph of y = sin x or y = cos x to find the exact values of x in the interval [0, 4π] that satisfy the equation.**

16. sin x = -1 17. sin x = 1/2 18. cos x = 1 19. cos x = $\sqrt{2}$/2

**Refer to the graph of y = tan x to find the exact values of x in the interval (-π/2, 3π/2) that satisfy the equation.**

20. tan x = 1 21. tan x = $\sqrt{3}$ 22. tan x = 0 23. tan x = -1 /$\sqrt{3}$

24. Sketch y = sin x and y = 2 + sin x on the same graph. 25. Sketch y = cos x and y = 3 + cos x on the same graph.

 

26. Sketch y = tan x and y = 1 + tan x on the same graph.

