**Find the values of the six trigonometric functions for the angle θ.**

1. 2. 3.

5 17

5

2

θ

θ

8

3

4

θ

15

4. 5. 6.

c

a

c

θ

**θ**

θ

a

b

b

**Find the exact values of x and y.**

7. 8. 9.

x

x

4 3 x 7

y

45°

60°

y

30°

y

**Find the exact values of the trigonometric functions for the acute angle θ.**

10. sin θ = 11. tan θ = 12. sec θ =

13. The peak of Mt. Fuji in Japan is approximately 12,400 feet high. A trigonometry student, several miles away, notes that the angle between level ground and the peak is 30°. Estimate the distance from the student to the point on level ground directly beneath the peak.

**Approximate to four decimal places.**

14. (a) sin 42° (b) cos 77° (c) csc 123° (d) sec (-190°)

(e) cot (f) csc 1.32 (g) cos (-8.54) (h) tan

**Use the Pythagorean identities to write the expression as an integer.**

15. (a) tan2 4β - sec2 4β (b) 4 tan2 β - 4 sec2 β 16. (a) 7 sec2 γ - 7 tan2 γ (b) 7 sec2 () - 7 tan2

**Simplify the expression.**

17. 18.

**Use fundamental identities to write the first expression in terms of the second, for any acute angle θ.**

19. cot θ, sin θ 20. sec θ, sin θ 21. sin θ, sec θ

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

22. cos θ sec θ = 1 23. sin θ sec θ = tan θ 24.

25. (1 + cos 2θ)(1 - cos 2θ) = sin2 2θ 26. cos2θ(sec2θ - 1) = sin2θ

**Find the exact values of the six trigonometric functions of θ if θ is in standard position and P is on the terminal side**.

27. P(4, -3) 28. P(-2, -5) 29. P(-1, 2)

**Find the exact values of the six trigonometric functions of each angle, whenever possible.**

30. (a) 90° (b) 0° (c) 7π/2 (d) 3π

**Find the quadrant containing θ if the given conditions are true.**

31. (a) cos θ > 0 and sin θ < 0 (b) sin θ < 0 and cot θ > 0 (c) csc θ > 0 and sec θ < 0

**Use fundamental identities to find the values of the trigonometric functions for the given conditions.**

32. tan θ = and sin θ > 0 33. sin θ = and sec θ > 0

**Rewrite the expression in nonradical form without using absolute values for the indicated values of θ.**

34**.**  π/2 < θ < π 35. 0 < θ < π