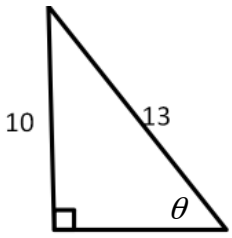
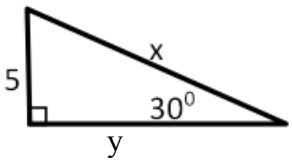
13.3B Worksheet Name _____ Assignment # _____

1. Evaluate the six trig functions of the angle θ.

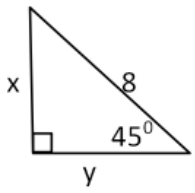


Find the missing side lengths x and y

2.



3.

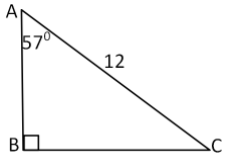


Use a calculator to evaluate the trig function. Round the result to 4 decimal places.

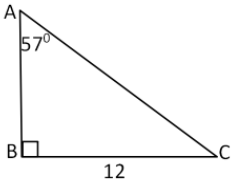
4. tan 10^0 5. sin 51^0 6. csc 18^0 7. sec 29^0 8. cot 38^0 9. cos 10^0

Solve right triangle ABC

10.



11.



Draw an angle with the given measure in std position. Find one positive angle and one negative angle coterminal with the given angle.

12. 105^0 13. -75^0 14. $\frac{4\pi}{3}$ 15. $-\frac{\pi}{4}$

Rewrite each degree measure in radians and each radian measure in degrees.

16. 315^0 17. $-\frac{3\pi}{4}$ 18. $\frac{5\pi}{6}$ 19. -75^0

Evaluate the six trig functions of the quadrantal angle θ.

20. $\theta = -270^0$ 21. $\theta = -90^0$ 22. $\theta = -180^0$ 23. $\theta = 360^0$

24. Find the arc length of a sector with the given radius 8m and central angle $\theta = 210^0$

Evaluate the trig function using a calculator if necessary. If possible, give an exact answer.

25. $\cot \frac{\pi}{3}$

26. $\tan \frac{\pi}{3}$

27. $\csc \frac{\pi}{8}$

28. $\cos \frac{2\pi}{5}$

29. $\sin \frac{7\pi}{15}$

30. $\sec \frac{3\pi}{8}$

31. $\cot \frac{\pi}{6}$

32. $\csc \frac{\pi}{4}$

Use the given point on the terminal side of an angle θ in standard position. Evaluate the 6 trig functions of θ.

33. $(3\ ,-2)$

34. $\left(-\sqrt{3},1\right)$

Sketch the angle. Then find its reference angle.

35. -510^0

36. 345^0

37. 200^0

38. -240^0

39. $\frac{21\pi}{4}$

40. $\frac{20\pi}{3}$

41. $-\frac{11\pi}{6}$

42. $\frac{2\pi}{3}$

Evaluate the function without using a calculator.

43. $\sec 225^0$

44. $\cos(-225^0)$

45. $\csc(-120^0)$

46. $\tan 240^0$

47. $\cos \frac{15\pi}{4}$

48. $\csc \frac{5\pi}{6}$

49. $\cot \frac{11\pi}{6}$

50. $\sec\left(-\frac{4\pi}{3}\right)$

Use a calculator to evaluate the function. Round the result to four decimal places.

51. $\csc 2.3^0$

52. $\cot 240^0$

53. $\sec\left(-\frac{9\pi}{2}\right)$

54. $\csc \frac{18\pi}{5}$

Answers:

$\sin\theta = 10/13; \csc\theta = 13/10$

1. $\cos\theta = \sqrt{69}/13; \sec\theta = 13\sqrt{69}/69$
$\tan\theta = 10\sqrt{69}/69; \cot\theta = \sqrt{69}/10$

2. $x = 10; y = 5\sqrt{3}$

3. $x = y = 4\sqrt{2}$

4. 0.1763

5. 0.7771

6. 3.2361

7. 1.1434

8. 1.2799

9. 0.9848

10. $\angle C = 33^{\circ}; a \approx 10.1; c \approx 6.5$

11. $b \approx 14.3; c \approx 7.8; \angle C = 33^{\circ}$

12. 465 °; -255°

13. 285°; -435°

14. $-2\pi/3; 10\pi/3$

15. $7\pi/4; -9\pi/4$

16. $7\pi/4$

17. -135°

18. 150°

19. $-5\pi/12$

20. $\sin\theta = 1; \csc\theta = 1$
$\cos\theta = 0; \sec\theta = undef$
$\tan\theta = undef; \cot\theta = 0$

21. $\sin\theta = -1; \csc\theta = -1$
$\cos\theta = 0; \sec\theta = undef$
$\tan\theta = undef; \cot\theta = 0$

22. $\sin\theta = 0; \csc\theta = undef$
$\cos\theta = 0 = -1; \sec\theta = -1$
$\tan\theta = 0; \cot\theta = undef$

23. $\sin\theta = 0; \csc\theta = undef$
$\cos\theta = 0 = 1; \sec\theta = 1$
$\tan\theta = 0; \cot\theta = undef$

24. $28\pi/3$; $112\pi/3$

25. $\frac{\sqrt{3}}{3}$

26. $\sqrt{3}$

27. 2.6131

28. 0.3090

29. 0.9945

30. 2.6131

31. $\sqrt{3}$

32. $\sqrt{2}$

33. $\sin\theta = \frac{-2\sqrt{13}}{13}; \csc\theta = \frac{-\sqrt{13}}{2}$
$\cos\theta = \frac{3\sqrt{13}}{13}; \sec\theta = \frac{\sqrt{13}}{3}$
$\tan\theta = -2/3; \cot\theta = -3/2$

34. $\sin\theta = \frac{1}{2}; \csc\theta = 2$
$\cos\theta = \frac{-\sqrt{3}}{2}; \sec\theta = \frac{-2\sqrt{3}}{3}$
$\tan\theta = -\frac{\sqrt{3}}{3}; \cot\theta = -\sqrt{3}$

35. 30°

36. 15°

37. 20°

38. 60°

39. $\pi/4$

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

41. $\frac{\pi}{6}$

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

43. $-\sqrt{2}$

44. $-\frac{\sqrt{2}}{2}$

45. $\frac{-2\sqrt{3}}{3}$

46. $\sqrt{3}$

47. $\frac{\sqrt{2}}{2}$

48. 2

49. $-\sqrt{3}$

50. -2

51. 24.9

52. 0.5774

53. undefined

54. -1.0515