

50. (a) $\pi/6$ (b) $(-\sqrt{3}/2, -\frac{1}{2})$

51. (a) $\pi/3$ (b) $(-\frac{1}{2}, -\sqrt{3}/2)$

52. (a) $\pi/4$ (b) $(\sqrt{2}/2, -\sqrt{2}/2)$ 53. (0.5, 0.8)

54. $(-0.8, 0.6)$ 55. $(0.5, -0.9)$ 56. $(-0.6, -0.9)$

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1. $y, x, y/x$ 2. 1, 1 3. $t = \pi/4, \sin t = \sqrt{2}/2, \cos t = \sqrt{2}/2;$

$t = \pi/2, \sin t = 1, \cos t = 0; t = 3\pi/4,$

$\sin t = \sqrt{2}/2, \cos t = -\sqrt{2}/2;$

$t = \pi, \sin t = 0, \cos t = -1; t = 5\pi/4,$

$\sin t = -\sqrt{2}/2, \cos t = -\sqrt{2}/2; t = 3\pi/2, \sin t = -1,$

$\cos t = 0; t = 7\pi/4, \sin t = -\sqrt{2}/2, \cos t = \sqrt{2}/2;$

$t = 2\pi, \sin t = 0, \cos t = 1$

4. $t = \pi/6, \sin t = \frac{1}{2}, \cos t = \sqrt{3}/2;$

$t = \pi/3, \sin t = \sqrt{3}/2, \cos t = \frac{1}{2};$

$t = \pi/2, \sin t = 1, \cos t = 0;$

$t = 2\pi/3, \sin t = \sqrt{3}/2, \cos t = -\frac{1}{2};$

$t = 5\pi/6, \sin t = \frac{1}{2}, \cos t = -\sqrt{3}/2;$

$t = \pi, \sin t = 0, \cos t = -1;$

$t = 7\pi/6, \sin t = -\frac{1}{2}, \cos t = -\sqrt{3}/2;$

$t = 4\pi/3, \sin t = -\sqrt{3}/2, \cos t = -\frac{1}{2};$

$t = 3\pi/2, \sin t = -1, \cos t = 0;$

$t = 5\pi/3, \sin t = -\sqrt{3}/2, \cos t = \frac{1}{2};$

$t = 11\pi/6, \sin t = -\frac{1}{2}, \cos t = \sqrt{3}/2;$

$t = 2\pi, \sin t = 0, \cos t = 1$

5. (a) $\sqrt{3}/2$ (b) $-1/2$ (c) $-\sqrt{3}$

6. (a) $1/2$ (b) $-\sqrt{3}/2$ (c) $-\sqrt{3}/3$

7. (a) $-1/2$ (b) $-1/2$ (c) $-1/2$

8. (a) $1/2$ (b) $1/2$ (c) $1/2$

9. (a) $-\sqrt{2}/2$ (b) $-\sqrt{2}/2$ (c) $\sqrt{2}/2$

10. (a) $\sqrt{2}/2$ (b) $-\sqrt{2}/2$ (c) $-\sqrt{2}/2$

11. (a) $\sqrt{3}/2$ (b) $2\sqrt{3}/3$ (c) $\sqrt{3}/3$

12. (a) $1/2$ (b) 2 (c) $-\sqrt{3}$ 13. (a) -1 (b) 0 (c) 0

14. (a) 1 (b) 0 (c) 0 15. (a) 2 (b) $-2\sqrt{3}/3$ (c) 2

16. (a) $-\sqrt{3}/2$ (b) $-2\sqrt{3}/3$ (c) -2

17. (a) $-\sqrt{3}/3$ (b) $\sqrt{3}/3$ (c) $-\sqrt{3}/3$

18. (a) $-\sqrt{3}/3$ (b) $-\sqrt{3}/3$ (c) $-\sqrt{3}/3$

19. (a) $\sqrt{2}/2$ (b) $-\sqrt{2}$ (c) -1

20. (a) $-\sqrt{2}/2$ (b) $-\sqrt{2}$ (c) 1

21. (a) -1 (b) 1 (c) -1 22. (a) -1 (b) -1 (c) 1

23. (a) 0 (b) 1 (c) 0 24. (a) 1 (b) 0 (c) 0

25. $\sin 0 = 0, \cos 0 = 1, \tan 0 = 0, \sec 0 = 1,$

others undefined

26. $\sin \pi/2 = 1, \cos \pi/2 = 0, \cot \pi/2 = 0, \csc \pi/2 = 1,$

others undefined

27. $\sin \pi = 0, \cos \pi = -1, \tan \pi = 0, \sec \pi = -1,$

others undefined

28. $\sin 3\pi/2 = -1, \cos 3\pi/2 = 0, \cot 3\pi/2 = 0,$

 $\csc 3\pi/2 = -1$, others undefined

29. $\frac{4}{5}, \frac{3}{5}, \frac{4}{3}$ 30. $\frac{4}{5}, -\frac{3}{5}, -\frac{4}{3}$ 31. $-\sqrt{11}/4, \sqrt{5}/4, -\sqrt{55}/5$

32. $-2\sqrt{2}/3, -1/3, 2\sqrt{2}$ 33. $\sqrt{13}/7, -6/7, -\sqrt{13}/6$

34. $\frac{9}{41}, \frac{40}{41}, \frac{9}{40}$ 35. $-\frac{12}{13}, -\frac{5}{13}, \frac{12}{5}$ 36. $2\sqrt{5}/5, \sqrt{5}/5, 2$

37. $\frac{21}{29}, -\frac{20}{29}, -\frac{21}{20}$ 38. $-\frac{7}{25}, \frac{24}{25}, -\frac{7}{24}$ 39. (a) 0.8 (b) 0.84147

40. (a) 0.7 (b) 0.69671 41. (a) 0.9 (b) 0.93204

42. (a) 0.3 (b) 0.28366 43. (a) 1 (b) 1.02964

44. (a) -3.6 (b) -3.60210 45. (a) -0.6 (b) -0.57482

46. (a) 0.9 (b) 0.88345 47. Negative 48. Negative

49. Negative 50. Positive 51. II 52. III 53. II 54. II

55. $\sin t = \sqrt{1 - \cos^2 t}$ 56. $\cos t = \sqrt{1 - \sin^2 t}$

57. $\tan t = (\sin t)/\sqrt{1 - \sin^2 t}$ 58. $\tan t = -\frac{\sqrt{1 - \cos^2 t}}{\cos t}$

59. $\sec t = -\sqrt{1 + \tan^2 t}$ 60. $\csc t = -\sqrt{1 + \cot^2 t}$

61. $\tan t = \sqrt{\sec^2 t - 1}$ 62. $\sin t = -\frac{\sqrt{\sec^2 t - 1}}{\sec t}$

63. $\tan^2 t = (\sin^2 t)/(1 - \sin^2 t)$ 64. $\sec^2 t \sin^2 t = \frac{1 - \cos^2 t}{\cos^2 t}$

65. $\cos t = -\frac{4}{5}, \tan t = -\frac{3}{4}, \csc t = \frac{5}{3}, \sec t = -\frac{5}{4}, \cot t = -\frac{4}{3}$

66. $\sin t = -\frac{3}{5}, \tan t = \frac{3}{4}, \csc t = -\frac{5}{3}, \sec t = -\frac{5}{4}, \cot t = \frac{4}{3}$

67. $\sin t = -2\sqrt{2}/3, \cos t = \frac{1}{3}, \tan t = -2\sqrt{2},$

$\csc t = -\frac{3}{4}\sqrt{2}, \cot t = -\sqrt{2}/4$

68. $\sin t = -\sqrt{17}/17, \cos t = -4\sqrt{17}/17,$

$\csc t = -\sqrt{17}, \sec t = -\sqrt{17}/4, \cot t = 4$

69. $\sin t = -\frac{3}{5}, \cos t = \frac{4}{5}, \csc t = -\frac{5}{3}, \sec t = \frac{5}{4}, \cot t = -\frac{4}{3}$

70. $\sin t = -\sqrt{3}/2, \cos t = \frac{1}{2}, \tan t = -\sqrt{3},$

$\csc t = -2\sqrt{3}/3, \cot t = -\sqrt{3}/3$

71. $\cos t = -\sqrt{15}/4, \tan t = \sqrt{15}/15, \csc t = -4,$

$\sec t = -4\sqrt{15}/15, \cot t = \sqrt{15}$

72. $\sin t = 4\sqrt{17}/17, \cos t = -\sqrt{17}/17,$

$\csc t = \sqrt{17}/4, \sec t = -\sqrt{17}, \cot t = -\frac{1}{4}$

73. Odd 74. Even 75. Odd 76. Neither 77. Even

78. Even 79. Neither 80. Even

81. $y(0) = 4, y(0.25) = -2.828, y(0.50) = 0,$

$y(0.75) = 2.828, y(1.00) = -4, y(1.25) = 2.828$

82. (a) 87 mmHg (b) 82.7 mmHg (c) 80 mmHg

(d) 73.9 mmHg 83. (a) 0.49870 amp (b) -0.17117 a

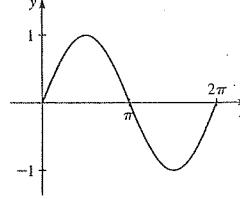
84. $H(0) = 175$ m, $H(1) = 150.4$ m, $H(2) = 100$ m,

$H(4) = 38.6$ m, $H(6) = 100$ m, $H(8) = 150.3$ m,

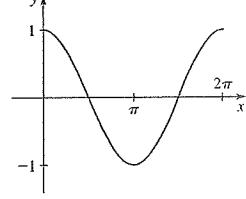
$H(12) = 58.8$ m

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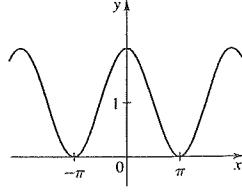
1. 1, 2 π



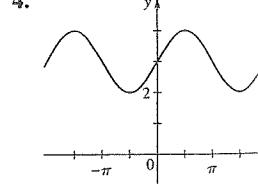
2. 3, π



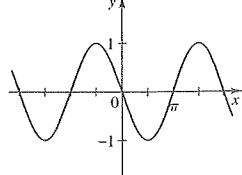
3.



4.



5.



6.

