

6 - 1: Answers

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|--------------------------|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|
| 1. $\frac{\sqrt{3}}{2}$ | 2. $\frac{\sqrt{3}}{3}$ | 3. $\frac{1}{2}$ | 4. $\frac{-2\sqrt{3}}{3}$ | 5. $\frac{-2\sqrt{3}}{3}$ | 6. -1 |
| 7. 0 | 8. 0 | 9. undefined | 10. -1 | 11. 2 | 12. $\sqrt{2}$ |
| 13. $\frac{-1}{2}$ | 14. 1 | 15. $\frac{-\sqrt{3}}{2}$ | 16. $\frac{-\sqrt{3}}{3}$ | 17. $\frac{-2\sqrt{3}}{3}$ | 18. undefined |
| 19. $\frac{1}{2}$ | 20. -1 | 21. 0 | 22. undefined | 23. undefined | 24. $\frac{-\sqrt{3}}{3}$ |
| 25. $\frac{\sqrt{3}}{2}$ | 26. $-\sqrt{3}$ | 27. 0 | 28. $\frac{\sqrt{3}}{3}$ | 29. $\frac{1}{2}$ | 30. $\frac{-2\sqrt{3}}{3}$ |
| 31. $\frac{\sqrt{2}}{2}$ | 32. $\frac{-\sqrt{3}}{3}$ | 33. $\frac{-\sqrt{3}}{2}$ | 34. -1 | 35. undefined | 36. 2 |

6 - 2: Answers $n \in \text{Integers}$ must be attached to the answers.

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|--|--------------------------------------|--|---------------------------------------|---------------------------------------|--------------------------------------|
| 1. $\frac{5\pi}{4}, \frac{7\pi}{4}$ | 2. $\frac{5\pi}{6}, \frac{11\pi}{6}$ | 3. $0, \pi$ | 4. $\frac{2\pi}{3}, \frac{4\pi}{3}$ | 5. $\frac{\pi}{6}, \frac{11\pi}{6}$ | 6. $\frac{4\pi}{3}, \frac{5\pi}{3}$ |
| 7. $\frac{3\pi}{4}, \frac{7\pi}{4}$ | 8. c | 9. $\frac{4\pi}{3}, \frac{5\pi}{3}$ | 10. $\frac{\pi}{4}, \frac{7\pi}{4}$ | 11. $\frac{\pi}{4}, \frac{7\pi}{4}$ | 12. $\frac{\pi}{6}, \frac{5\pi}{6}$ |
| 13. $\frac{\pi}{6}, \frac{7\pi}{6}$ | 14. $\frac{2\pi}{3}, \frac{4\pi}{3}$ | 15. $\frac{2\pi}{3}, \frac{5\pi}{3}$ | 16. $\frac{\pi}{3}, \frac{4\pi}{3}$ | 17. $\frac{\pi}{2}$ | 18. $\frac{5\pi}{6}, \frac{7\pi}{6}$ |
| 19. $\frac{\pi}{6}, \frac{5\pi}{6}$ | 20. $\frac{\pi}{2}, \frac{3\pi}{2}$ | 21. $\frac{\pi}{6}, \frac{7\pi}{6}$ | 22. $\frac{5\pi}{6}, \frac{11\pi}{6}$ | 23. $\frac{7\pi}{6}, \frac{11\pi}{6}$ | 24. 0 |
| 25. $\frac{5\pi}{6} + 2\pi k, \frac{7\pi}{6} + 2\pi k$ | | 26. $\frac{\pi}{6} + 2\pi n, \frac{7\pi}{6} + 2\pi n$ or $\frac{\pi}{6} + \pi n$ | | | |
| 27. $\frac{\pi}{4} + 2\pi n, \frac{5\pi}{4} + 2\pi n$ or $\frac{\pi}{4} + \pi n$ | | 28. $\frac{\pi}{3} + 2\pi k, \frac{5\pi}{3} + 2\pi k$ | | | |
| 29. $\frac{2\pi}{3} + 2\pi k, \frac{4\pi}{3} + 2\pi k$ | | 30. $\frac{\pi}{3} + 2\pi k, \frac{2\pi}{3} + 2\pi k$ | | 31. $\frac{3\pi}{2} + 2\pi n$ | |
| 32. $\frac{2\pi}{3} + 2\pi k, \frac{5\pi}{3} + 2\pi k$ or $\frac{2\pi}{3} + \pi n$ | | 33. $\frac{\pi}{3} + 2\pi n, \frac{4\pi}{3} + 2\pi n$ or $\frac{\pi}{3} + \pi n$ | | | |

34. $0 + 2\pi n$ 35. $\frac{3\pi}{4} + 2\pi k, \frac{5\pi}{4} + 2\pi k$ 36. $\frac{\pi}{4} + 2\pi k, \frac{3\pi}{4} + 2\pi k$

37. $\frac{5\pi}{4} + 2\pi k, \frac{7\pi}{4} + 2\pi k$ 38. $\frac{\pi}{3} + 2\pi k, \frac{5\pi}{3} + 2\pi k$

39. $\frac{\pi}{4} + 2\pi n, \frac{5\pi}{4} + 2\pi n$ or $\frac{\pi}{4} + \pi n$ 40. $\frac{\pi}{2} + 2\pi k, \frac{3\pi}{2} + 2\pi k$ or $\frac{\pi}{2} + \pi n$

41. $\frac{3\pi}{2} + 2\pi n$ 42. $\frac{\pi}{3} + 2\pi k, \frac{5\pi}{3} + 2\pi k$

6 – 3: Answers

1. $\frac{3\pi}{4}, \frac{7\pi}{4}$ 2. $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ 3. 0 4. $\frac{\pi}{4}, \frac{5\pi}{4}, \frac{2\pi}{3}, \frac{5\pi}{3}$

5. $\frac{7\pi}{6}, \frac{11\pi}{6}, \frac{\pi}{4}, \frac{3\pi}{4}$ 6. π 7. $\frac{\pi}{2}, \frac{3\pi}{2}$ 8. $\frac{7\pi}{6}, \frac{11\pi}{6}, \frac{3\pi}{2}$

9. $\frac{2\pi}{3}, \frac{4\pi}{3}, 0$ 10. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$ 11. $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$

12. $\frac{3\pi}{2}$ 13. $\frac{3\pi}{4}, \frac{7\pi}{4}$ 14. $\frac{3\pi}{2}, 0, \pi$ 15. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

16. $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ 17. $0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}$ 18. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

6 – 5: Answers (Do Not Reduce The Fractions)

1. $\frac{3\pi}{4}, \frac{7\pi}{4}$ 2. $\frac{4\pi}{3}$ 3. $\frac{3\pi}{8}, \frac{7\pi}{8}, \frac{11\pi}{8}, \frac{15\pi}{8}$ 4. $\frac{2\pi}{3}, \frac{4\pi}{3}$

5. $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ 6. $\frac{\pi}{12}, \frac{11\pi}{12}, \frac{13\pi}{12}, \frac{23\pi}{12}$ 7. No Solution

8. $\frac{4\pi}{6}, \frac{5\pi}{6}, \frac{10\pi}{6}, \frac{11\pi}{6}$ 9. $\frac{4\pi}{3}$ 10. $\frac{3\pi}{4}$ 11. $\frac{5\pi}{12}, \frac{11\pi}{12}, \frac{17\pi}{12}, \frac{23\pi}{12}$

12. $\frac{3\pi}{12}, \frac{7\pi}{12}, \frac{11\pi}{12}, \frac{15\pi}{12}, \frac{19\pi}{12}, \frac{23\pi}{12}$ 13. $\frac{\pi}{6}, \frac{2\pi}{6}, \frac{7\pi}{6}, \frac{8\pi}{6}$

14. No Solution 15. $\frac{0\pi}{4}, \frac{\pi}{4}, \frac{2\pi}{4}, \frac{3\pi}{4}, \frac{4\pi}{4}, \frac{5\pi}{4}, \frac{6\pi}{4}, \frac{7\pi}{4}$

16. $\frac{4\pi}{6}$ 17. No Solution 18. $\frac{\pi}{6}, \frac{4\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

6 – 6: Answers

1. $y = \sin x$ **Domain:** $(-\infty, +\infty)$ All Reals **Range:** $[-1, 1]$
2. $y = \cos x$ **Domain:** $(-\infty, +\infty)$ All Reals **Range:** $[-1, 1]$
3. $y = \tan x$ **Domain:** All Reals except $\left(\frac{\pi}{2} + n\pi \ (n \in \text{Integers})\right)$ **Range:** $(-\infty, +\infty)$ All Reals
4. $y = \csc x$ **Domain:** All Reals except $(0 + n\pi \ (n \in \text{Integers}))$ **Range:** $(-\infty, -1] \cup [1, +\infty)$
5. $y = \sec x$ **Domain:** All Reals except $\left(\frac{\pi}{2} + n\pi \ (n \in \text{Integers})\right)$ **Range:** $(-\infty, -1] \cup [1, +\infty)$
6. $y = \cot x$ **Domain:** All Reals except $(0 + n\pi \ (n \in \text{Integers}))$ **Range:** $(-\infty, \infty)$
7. $y = \arcsin x$ **Domain:** $[-1, 1]$ **Range:** $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
8. $y = \arccos x$ **Domain:** $[-1, 1]$ **Range:** $[0, \pi]$
9. $y = \arctan x$ **Domain:** $(-\infty, +\infty)$ All Reals **Range:** $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$
10. $y = \text{arc csc } x$ **Domain:** $(-\infty, -1] \cup [1, +\infty)$ **Range:** $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
11. $y = \text{arc sec } x$ **Domain:** $(-\infty, -1] \cup [1, +\infty)$ **Range:** $[0, \pi]$
12. $y = \text{arc cot } x$ **Domain:** $(-\infty, +\infty)$ All Reals **Range:** $(0, \pi)$
13. $\frac{-\pi}{6}$ 14. $\frac{2\pi}{3}$ 15. $\frac{3\pi}{4}$ 16. $\frac{\pi}{4}$ 17. $\frac{\pi}{6}$ 18. $\frac{\pi}{6}$
19. $\frac{\pi}{3}$ 20. $\frac{\pi}{4}$ 21. $\frac{2\pi}{3}$ 22. $\frac{-\pi}{6}$ 23. $\frac{5\pi}{6}$ 24. $\frac{-\pi}{3}$
25. 0 26. $\frac{5\pi}{6}$ 27. 0 28. $\frac{-\pi}{4}$ 29. $\frac{\pi}{2}$ 30. $\frac{-\pi}{4}$
31. $\frac{-\pi}{6}$ 32. $\frac{-\pi}{2}$ 33. $\frac{2\pi}{3}$ 34. $\frac{-\pi}{3}$ 35. $\frac{\pi}{6}$ 36. $\frac{-\pi}{3}$
37. $\frac{5\pi}{6}$ 38. $\frac{-\pi}{3}$ 39. $\frac{2\pi}{3}$ 40. $\frac{-4}{3}$ 41. $\frac{12}{13}$ 42. $\frac{3}{5}$
43. $\frac{4}{3}$ 44. $\frac{5}{4}$ 45. $\frac{\sqrt{41}}{5}$ 46. $\frac{\sqrt{15}}{4}$ 47. $\frac{120}{169}$ 48. $\frac{14}{16}$
49. $\frac{\sqrt{1-x^2}}{1}$ 50. $\frac{\sqrt{1-x^2}}{x}$ 51. $\frac{\sqrt{1-x^2}}{1}$ 52. $\frac{\sqrt{1-x^2}}{x}$ 53. $\frac{\sqrt{x^2-25}}{x}$ 54. $\frac{\sqrt{x^2+4}}{x}$

6-7: Trig Review Answers

1. $\frac{\sqrt{3}}{2}$ 2. 1 3. $\frac{-1}{2}$ 4. 0 5. $-\sqrt{2}$ 6. -2
7. 1 8. undefined 9. undefined 10. undefined 11. -1 12. 1
13. $\frac{\pi}{3}, \frac{2\pi}{3}$ 14. $\frac{2\pi}{3}, \frac{4\pi}{3}$ 15. $\frac{3\pi}{4}, \frac{5\pi}{4}$ 16. $\frac{5\pi}{6}, \frac{11\pi}{6}$ 17. $\frac{7\pi}{6}, \frac{11\pi}{6}$ 18. $0, \pi$
19. $\frac{3\pi}{4}, \frac{7\pi}{4}$ 20. $\frac{3\pi}{4}, \frac{5\pi}{4}$ 21. $\frac{\pi}{6}, \frac{7\pi}{6}$ 22. π 23. $\frac{\pi}{2}, \frac{3\pi}{2}$ 24. $\frac{\pi}{2}$
25. $\frac{-\pi}{6}$ 26. $\frac{2\pi}{3}$ 27. $\frac{-\pi}{3}$ 28. $\frac{-\pi}{3}$ 29. $\frac{5\pi}{6}$ 30. π
31. $\frac{\pi}{4}$ 32. $\frac{3\pi}{4}$ 33. $\frac{\pi}{6}$ 34. $\frac{-\sqrt{3}}{2}$ 35. $\frac{\sqrt{2}}{2}$ 36. $\frac{\pi}{6}$
37. $\frac{3}{5}$ 38. $\frac{12}{13}$ 39. $\frac{5}{12}$ 40. $\frac{-4}{3}$ 41. $\frac{\pi}{3} + 2\pi k, \frac{2\pi}{3} + 2\pi k$
42. $\frac{5\pi}{6} + 2\pi k, \frac{7\pi}{6} + 2\pi k$ 43. $\frac{5\pi}{6} + \pi k$ 44. $\frac{3\pi}{4} + 2\pi k, \frac{5\pi}{4} + 2\pi k$ 45. $\frac{3\pi}{4} + \pi k$
46. $\frac{7\pi}{6} + 2\pi k, \frac{11\pi}{6} + 2\pi k$ 47. $0 + \pi k$ 48. $\frac{3\pi}{2} + 2\pi k$ 49. $\pi + 2\pi k$
50. $\frac{2\pi}{3} + \pi k$ 51. $\frac{2\pi}{3} + 2\pi k, \frac{4\pi}{3} + 2\pi k$ 52. $\frac{5\pi}{4} + 2\pi k, \frac{7\pi}{4} + 2\pi k$
53. $\frac{\pi}{6}, \frac{2\pi}{6}, \frac{7\pi}{6}, \frac{8\pi}{6}$ 54. $\frac{2\pi}{6}, \frac{4\pi}{6}, \frac{8\pi}{6}, \frac{10\pi}{6}$ 55. $\frac{3\pi}{12}, \frac{5\pi}{12}, \frac{11\pi}{12}, \frac{13\pi}{12}, \frac{19\pi}{12}, \frac{21\pi}{12}$
56. $\frac{5\pi}{12}, \frac{11\pi}{12}, \frac{17\pi}{12}, \frac{23\pi}{12}$ 57. $\frac{\pi}{3}, \frac{3\pi}{3}, \frac{5\pi}{3}$ 58. $\frac{5\pi}{8}, \frac{7\pi}{8}, \frac{13\pi}{8}, \frac{15\pi}{8}$
59. $\frac{6\pi}{4}$ 60. $\frac{6\pi}{4}$ 61. $\frac{3\pi}{6}$ 62. NS 63. $\frac{4\pi}{3}$ 64. $\frac{3\pi}{2}$
65. $\frac{\pi}{6}, \frac{3\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{9\pi}{6}, \frac{11\pi}{6}$ 66. 0 67. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{9\pi}{6}$ 68. $0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}$
69. $\frac{3\pi}{2}, \frac{\pi}{6}, \frac{5\pi}{6}$ 70. $\frac{2\pi}{3}, \frac{4\pi}{3}$ 71. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$ 72. $\frac{\pi}{2}$
73. $\frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{6}, \frac{11\pi}{6}$ 74. $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ 75. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$ 76. $\frac{\pi}{2}, \frac{3\pi}{2}$