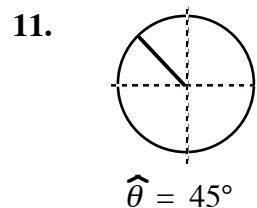
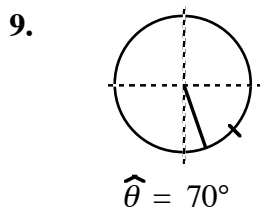
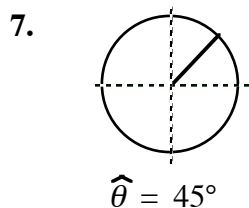
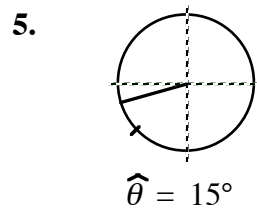
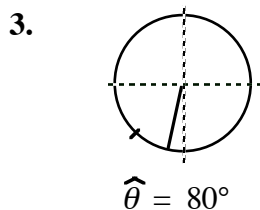
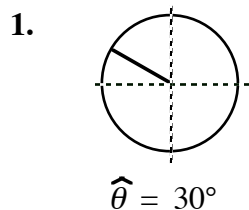


Chapter 3, Trigonometry Around the Unit Circle

Focus Exercise Answers

Section 3.1 The Unit Circle



13. $(\frac{\sqrt{3}}{2}, \frac{1}{2})$

15. $(\frac{1}{2}, \frac{\sqrt{3}}{2})$

17. $(\frac{1}{2}, -\frac{\sqrt{3}}{2})$

19. $(-\frac{1}{2}, -\frac{\sqrt{3}}{2})$

21. $(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$

23. $(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$

25. $(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2})$

27. $(-\frac{\sqrt{3}}{2}, \frac{1}{2})$

29. $(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2})$

31. $(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$

33. $(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$

35. $(-1, 0)$

37. $(0, 1)$

39. $(-1, 0)$

Section 3.2 Sine and Cosine in the Unit Circle

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

3. $+\frac{1}{2}$

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

7. -1

9. $-\frac{1}{2}$

11. 0

13. $+1$

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

17. $+1$

19. $+\frac{\sqrt{2}}{2}$

21. $+\frac{1}{2}$

23. 0

25. $+\frac{\sqrt{3}}{2}$

27. $+\frac{\sqrt{3}}{2}$

29. $+\frac{\sqrt{3}}{2}$

31. -1

33. $+\frac{\sqrt{2}}{2}$

35. $+\frac{\sqrt{2}}{2}$

37. $\theta = 210^\circ$

39. $\theta = 300^\circ$

41. $\theta = 135^\circ$

43. $\theta = 135^\circ$

45. $\theta = 120^\circ$

47. $\theta = 330^\circ$

49. $\theta = 90^\circ, 270^\circ$

51. $\theta = 0^\circ, 180^\circ$

53. $\theta = 180^\circ$

Section 3.3 Other Trig Functions in the Unit Circle

- | | | | |
|---------------------------|------------------------------------|---------------------------|--------------------------|
| 1. $-\sqrt{3}$ | 3. $-\frac{\sqrt{3}}{3}$ | 5. $-\frac{2\sqrt{3}}{3}$ | 7. $+1$ |
| 9. $-\frac{2\sqrt{3}}{3}$ | 11. undefined | 13. undefined | 15. $+\sqrt{3}$ |
| 17. $+1$ | 19. $+\sqrt{2}$ | 21. $+\frac{\sqrt{3}}{3}$ | 23. -1 |
| 25. $-\frac{\sqrt{3}}{3}$ | 27. $+\frac{2\sqrt{3}}{3}$ | 29. $-\sqrt{2}$ | 31. -1 |
| 33. $+1$ | 35. $+\sqrt{2}$ | 37. $\theta = 210^\circ$ | 39. $\theta = 300^\circ$ |
| 41. $\theta = 210^\circ$ | 43. $\theta = 150^\circ$ | 45. $\theta = 135^\circ$ | 47. $\theta = 120^\circ$ |
| 49. $\theta = 270^\circ$ | 51. $\theta = 90^\circ, 270^\circ$ | | |

Section 3.4 Radian Measures

- | | | | |
|---------------------------|----------------------------|----------------------------|---------------------------|
| 1. $\frac{5\pi}{6}$ | 3. $\frac{11\pi}{20}$ | 5. $\frac{5\pi}{2}$ | 7. 220° |
| 9. 42° | 11. $+\frac{\sqrt{2}}{2}$ | 13. $+\sqrt{3}$ | 15. $+1$ |
| 17. 0 | 19. 0 | 21. $-\frac{2\sqrt{3}}{3}$ | 23. $+\frac{\sqrt{3}}{3}$ |
| 25. $-\frac{\sqrt{3}}{2}$ | 27. $+\frac{1}{2}$ | 29. $-\sqrt{2}$ | 31. -2 |
| 33. 0 | 35. $-\frac{2\sqrt{3}}{3}$ | 37. $+\sqrt{3}$ | 39. $+\frac{1}{2}$ |

Section 3.5 Radian Measures

- | | | | |
|----------------------------|----------------------------|------------------------------|---------------------------|
| 1. $\frac{\sqrt{2}}{2}$ | 3. $\sqrt{3}$ | 5. 1 | 7. 0 |
| 9. 0 | 11. $-\frac{2\sqrt{3}}{3}$ | 13. $\frac{\sqrt{3}}{3}$ | 15. $-\frac{\sqrt{3}}{2}$ |
| 17. $\frac{1}{2}$ | 19. $-\sqrt{2}$ | 21. -2 | 23. 0 |
| 25. $-\frac{2\sqrt{3}}{3}$ | 27. $\sqrt{3}$ | 29. $\frac{1}{2}$ | 31. $t = \frac{\pi}{4}$ |
| 33. $t = \frac{3\pi}{4}$ | 35. $t = \frac{7\pi}{6}$ | 37. $t = \frac{5\pi}{2}$ | 39. $t = \frac{17\pi}{6}$ |
| 41. $t = -\frac{\pi}{6}$ | 43. $t = -\frac{\pi}{2}$ | 45. $t = 0$ | 47. $t = \frac{\pi}{2}$ |
| 49. a) -2 | b) $2\sqrt{2}$ | 51. a) $\frac{2\sqrt{3}}{3}$ | b) $-\sqrt{2}$ |