

39.  $\frac{1}{4}\sqrt{2(4-\sqrt{7})}$

41. False. If  $\frac{\pi}{2} < \theta < \pi$ , then  $\cos \frac{\theta}{2} > 0$ .

43. True    45.  $0, \pi$     47.  $0, \frac{3\pi}{4}, \pi, \frac{5\pi}{4}$

49.  $0, \frac{\pi}{2}, \pi$     51.  $\frac{\pi}{3}, \frac{5\pi}{3}$     53.  $\frac{\pi}{4}, \frac{5\pi}{4}$

55. False.  $\sin \theta = \frac{1}{2}$  has an infinite number of solutions but is not an identity.

57.  $2 \cos \frac{5\theta}{2} \cos \frac{\theta}{2}$     59.  $\frac{1}{2}(\cos \alpha - \cos 5\alpha)$

61.  $8x^2 - 1$     63. Answers will vary.

65. (a)  $y = \frac{1}{2}\sqrt{10} \sin(8t - \arctan \frac{1}{3})$

(b)  $\frac{1}{2}\sqrt{10}$  feet

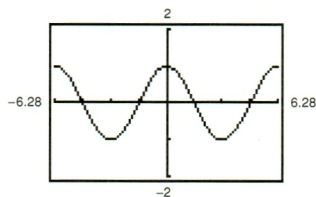
(c)  $\frac{4}{\pi}$  cycle per second

**Review Exercises (page 506)**

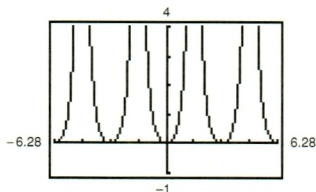
1.  $\sin^2 x$     3.  $1 + \cot \alpha$     5. 1    7.  $\tan(2x + 2)$

9.–25. Answers will vary.

27.



29.



31.  $\frac{\sqrt{2}}{4}(\sqrt{3} + 1)$     33.  $-\frac{1}{2}\sqrt{2 + \sqrt{2}}$

35.  $-\frac{3}{52}(5 + 4\sqrt{7})$     37.  $\frac{1}{52}(36 + 5\sqrt{7})$