

Spiral Review: Chapter 8 and 9 Solutions

$$1) \sin \theta = \frac{9\sqrt{106}}{106}$$

$$\frac{\sqrt{91}}{10}$$

2)

3)  $b = 3.32$

$A = 56.44^\circ$

$B = 33.56^\circ$

4)  $46.82 \text{ m}$

5)  $18.7 \text{ ft}$

6)  $A = 120^\circ, b = 1, c = 4.42$

7) two triangles

$A_1 = 18.88^\circ, C_1 = 146.12^\circ, c_1 = 8.62$  or

$A_2 = 161.12^\circ, C_2 = 3.88^\circ, c_2 = 1.05$

8)  $B = 90^\circ, C = 60^\circ, c = 36.4$

9)  $304 \text{ m}$

10)  $A = 21.8^\circ, B = 60.1^\circ, C = 98.1^\circ$

11)  $55.1 \text{ ft}$

12)  $26.80$

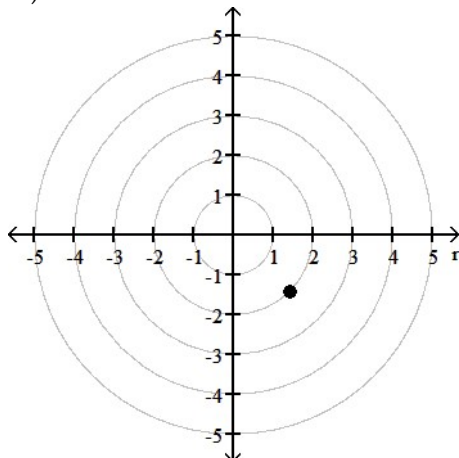
13)  $81.33$

14)  $d = -16 \cos \left( \frac{1}{4} \pi t \right)$

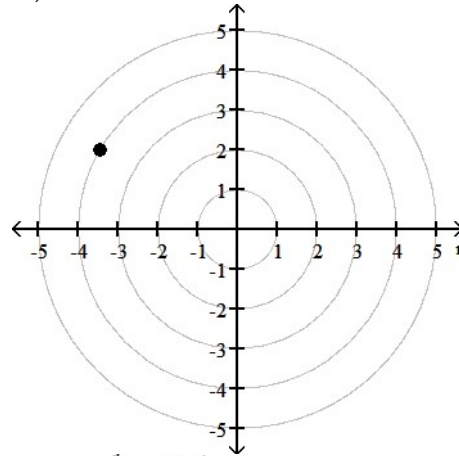
15) simple harmonic;  $5 \text{ m}; 4 \text{ sec}; \frac{1}{4}$  oscillation/sec

16) A

17)



18)



(a)  $\left( 4, -\frac{7\pi}{6} \right)$

(b)  $\left( -4, \frac{11\pi}{6} \right)$

(c)  $\left( 4, \frac{17\pi}{6} \right)$

19)  $\left( \frac{9}{2}, -\frac{9\sqrt{3}}{2} \right)$

20)  $\left( 3, -\frac{\pi}{2} \right)$

21)  $\left( 3\sqrt{2}, -\frac{\pi}{4} \right)$

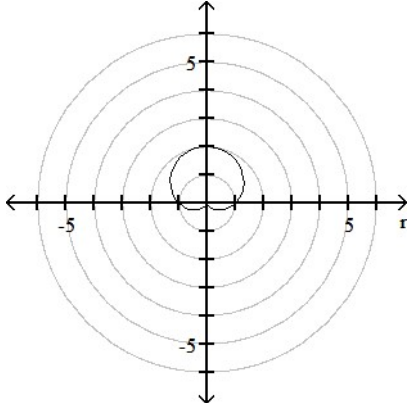
22)  $r \cos^2 \theta = 4 \sin \theta$

23)  $r \sin \theta = 5$

24)  $x^2 + y^2 = 2y - 2x$

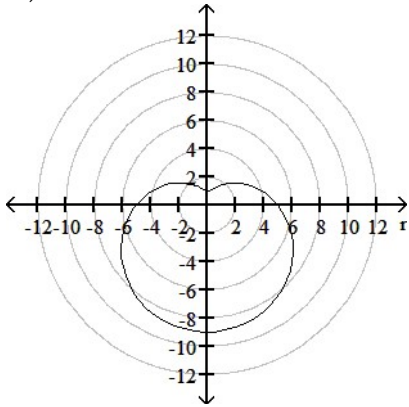
25)  $y = 10$

26)



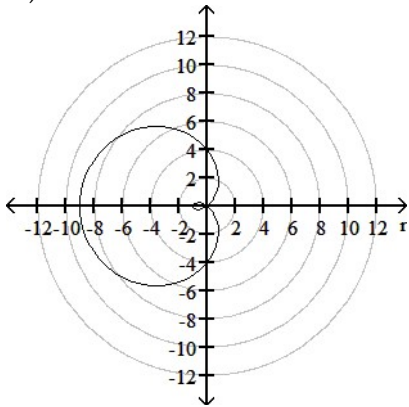
cardioid

27)



limaçon without inner loop

28)

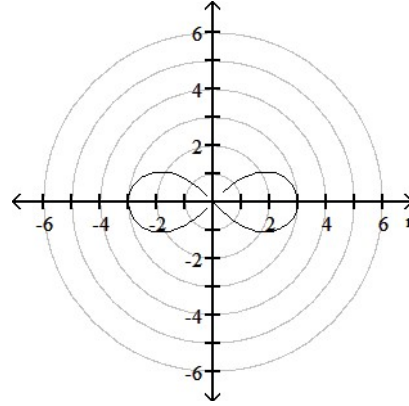


limaçon with inner loop

29) skip

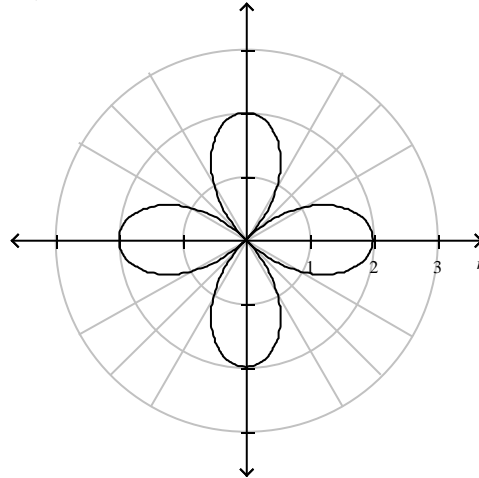
30) skip

31)



lemniscate

32)



rose with four petals

33)  $\mathbf{v} = 10\mathbf{i} - 5\mathbf{j}$

34)  $6\mathbf{i} + 4\mathbf{j}$

35)  $16\mathbf{i} + 8\mathbf{j}$

36) 10

37)  $\mathbf{v} = \frac{3}{2}\mathbf{i} + \frac{3\sqrt{3}}{2}\mathbf{j}$

38)  $135^\circ$

39) Tension in right cable: 1281.09 kg; tension in left cable: 905.87 kg

40) 52

41)  $29.2^\circ$

42) Orthogonal

43) 4574.5 ft-lb