

### Spiral Review: Chapter 8 and 9 Solutions

1)  $\sin\theta = \frac{9\sqrt{106}}{106}$ ,  $\cos\theta = \frac{5\sqrt{106}}{106}$ ,  $\tan\theta = \frac{9}{5}$   
 $\csc\theta = \frac{\sqrt{106}}{9}$ ,  $\sec\theta = \frac{\sqrt{106}}{5}$ ,  $\cot\theta = \frac{5}{9}$

2)  $\sin\theta = \frac{3}{10}$ ,  $\cos\theta = \frac{\sqrt{91}}{10}$ ,  $\tan\theta = \frac{3\sqrt{91}}{91}$   
 $\csc\theta = \frac{10}{3}$ ,  $\sec\theta = \frac{10\sqrt{91}}{91}$ ,  $\cot\theta = \frac{\sqrt{91}}{3}$

3)  $b = 3.32$

$A = 56.44^\circ$

$B = 33.56^\circ$

4) 46.82 m

5) 18.7 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 m

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

11) 55.1 ft

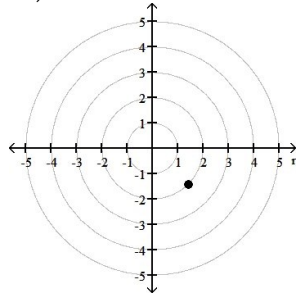
12) 26.80

13) 81.33

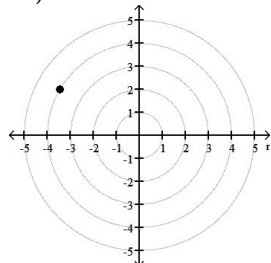
14) C

15A

16)



17)

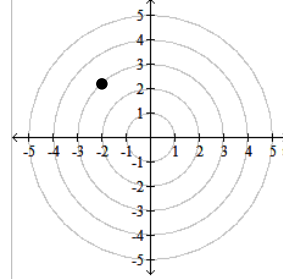


(a)  $\left(4, -\frac{7\pi}{6}\right)$

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

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

18)



a)  $\left(3, -\frac{5\pi}{4}\right)$

b)  $\left(-3, -\frac{\pi}{4}\right)$

c)  $\left(3, \frac{11\pi}{4}\right)$

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

20)  $(3, \pi)$

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

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

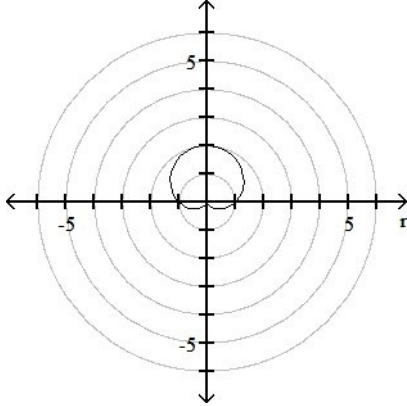
23)  $r = 3 \sin \theta$

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

25 A)  $y = 10$

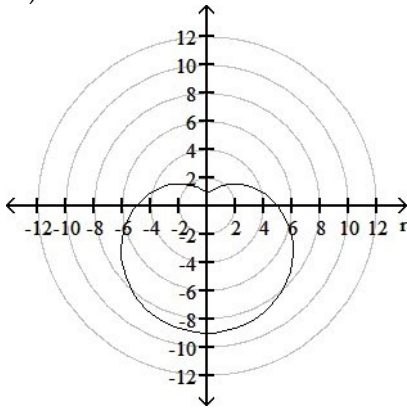
B)  $(x - 3)^2 + y^2 = 9$

26)



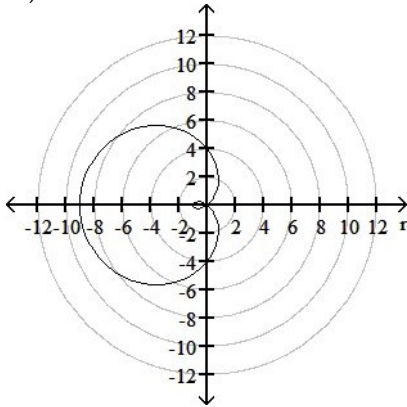
cardioid

27)



limaçon without inner loop

28)

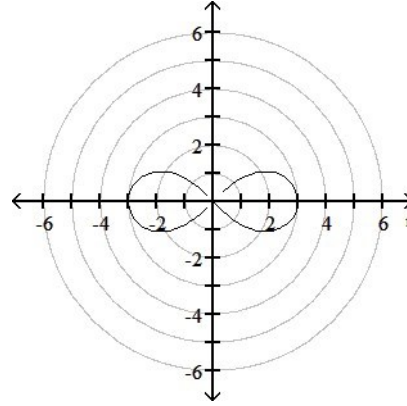


limaçon with inner loop

29) skip

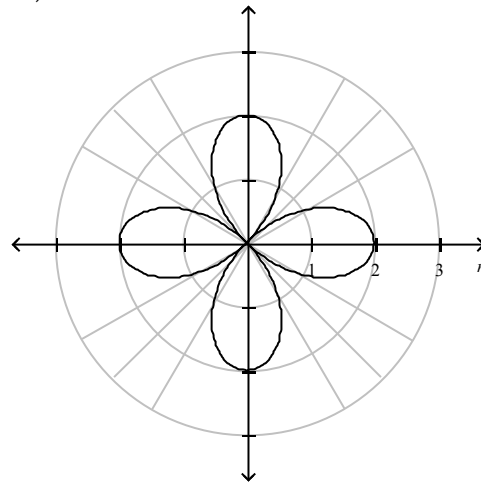
30) skip

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