Chapter 7 Spiral Review solutions

1) 0

2) $\dfrac{\pi}{6}$

3) $\dfrac{\pi}{4}$

4) π

5) $\dfrac{5\pi}{6}$

6) $-\dfrac{\pi}{6}$

7) $-\dfrac{\pi}{4}$

8) $-\dfrac{8}{11}$

9) $-\dfrac{\pi}{6}$

10) $-\dfrac{7}{10}$

11) $\dfrac{\sqrt{2}}{2}$

12) $\dfrac{\sqrt{2}}{2}$

13) $\dfrac{3\pi}{4}$

14) $\dfrac{2\pi}{3}$

15) $\dfrac{\sqrt{u^2+1}}{u^2+1}$

16) $\dfrac{u\sqrt{1-u^2}}{1-u^2}$

17) $\left\{\dfrac{\pi}{6}, \dfrac{5\pi}{6}\right\}$

18) $\left\{\dfrac{\pi}{6}, \dfrac{5\pi}{6}, \dfrac{7\pi}{6}, \dfrac{11\pi}{6}\right\}$

19) $\left\{\dfrac{5\pi}{6}, \dfrac{7\pi}{6}\right\}$

20) $\left\{\dfrac{7\pi}{6}, \dfrac{11\pi}{6}\right\}$

21) $\left\{0, \pi, \dfrac{3\pi}{2}\right\}$

22) $\left\{\dfrac{\pi}{4}, \dfrac{3\pi}{4}, \dfrac{5\pi}{4}, \dfrac{7\pi}{4}\right\}$

23) $\tan \theta \cdot \csc \theta = \dfrac{\sin\theta}{\cos\theta} \cdot \dfrac{1}{\sin\theta} = \dfrac{1}{\cos\theta} = \sec\theta$

24) $\tan u(\csc u - \sin u) = \tan u \cdot \csc u - \tan u \cdot \sin u = \dfrac{\sin u}{\cos u} \cdot \dfrac{1}{\sin u} - \dfrac{\sin u}{\cos u} \cdot \sin u = \dfrac{1}{\cos u} - \dfrac{\sin^2 u}{\cos u} = \dfrac{1-\sin^2 u}{\cos u} = \dfrac{\cos^2 u}{\cos u} = \cos u$

25) $\cot^2 x = \csc^2 x - 1 = (\csc x - 1)(\csc x + 1)$.

26) $\csc u - \sin u = \dfrac{1}{\sin u} - \sin u = \dfrac{1-\sin^2 u}{\sin u} = \dfrac{\cos^2 u}{\sin u} = \cos u \cdot \dfrac{\cos u}{\sin u} = \cos u \cot u$

27) $\dfrac{1-\sin t}{\cos t} = \left(\dfrac{1+\sin t}{1+\sin t}\right)\left(\dfrac{1-\sin t}{\cos t}\right) = \dfrac{\cos^2 t}{\cos t(1+\sin t)} = \dfrac{\cos t}{1+\sin t}$.

28) $\dfrac{\sqrt{2}(\sqrt{3}-1)}{4}$

29) $\dfrac{\sqrt{2}(\sqrt{3}-1)}{4}$

30) 0

31) $-\dfrac{\sqrt{3}}{3}$

32) $\dfrac{-6+4\sqrt{21}}{25}$

33) $\dfrac{627}{725}$

34) $-\dfrac{120}{169}$

35) $-\dfrac{7}{25}$

36) $\dfrac{\sqrt{10}+1}{-3}$

37) $\dfrac{\sqrt{8+2\sqrt{15}}}{4}$

38) $\dfrac{1}{2}\sqrt{2+\sqrt{2}}$

39) $-\dfrac{24}{25}$