

Chapter 7 Spiral Review solutions

1) 0

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

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

4) $\frac{\pi}{6}$

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

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

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

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

9) $\frac{\pi}{6}$

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

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

12) $\frac{\sqrt{77}}{9}$

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

14) $\frac{\sqrt{33}}{4}$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

30) 0

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

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

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

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

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

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

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

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

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