

1. A pendulum swings through an angle of  $45^\circ$ . Find the length of the pendulum to the nearest cm if the end of the pendulum swings through an arc of length 32 cm. (no calc)
2. Given that  $\cos \theta = -0.124$ , what are the possible values of  $\theta$ ?  $0 \leq \theta < 2\pi$
3. Given that  $\sin \theta = \frac{\sqrt{3}}{2}$ , what are the possible values of  $\theta$ ?  $0 \leq \theta < 2\pi$  (no calc)
4. Determine the reference angle of  $\frac{17\pi}{4}$ , and the exact value of  $\sec \frac{17\pi}{4}$  (no calc)
5. If  $\csc \theta = \frac{-2}{\sqrt{3}}$  and  $\pi \leq \theta < 2\pi$ , what are the values of  $\cot \theta$ ? (no calc)
6. Determine the values of  $\theta$  if  $\sin^2 \theta = \frac{1}{2}$ ,  $0 \leq \theta < 2\pi$  (no calc)

Answer:

1.  $\frac{128}{\pi}$

2. 1.70, 4.59

3.  $\frac{\pi}{3}, \frac{2\pi}{3}$

4.  $\frac{\pi}{4}, \sqrt{2}$

5. Case 1 (Q3):  $\frac{1}{\sqrt{3}}$ , Case 2 (Q4):  $\frac{-1}{\sqrt{3}}$

6. Case 1:  $\sin \theta = \frac{1}{\sqrt{2}}$ ,  $\theta = \frac{\pi}{4}, \frac{3\pi}{4}$

Case 2:  $\sin \theta = \frac{-1}{\sqrt{2}}$ ,  $\theta = \frac{5\pi}{4}, \frac{7\pi}{4}$