

**Q.1:** Find the value of  $\csc\left(-\frac{7\pi}{3}\right)\cot\left(\frac{11\pi}{4}\right) + \cos\left(\frac{25\pi}{3}\right)\cos(810^\circ)$

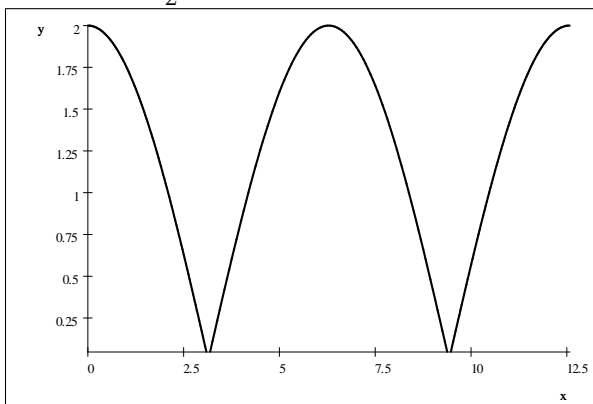
**Sol:** 
$$\begin{aligned} \csc\left(-\frac{7\pi}{3}\right)\cot\left(\frac{11\pi}{4}\right) + \cos\left(\frac{25\pi}{3}\right)\cos(810^\circ) &= \csc\left(-\frac{\pi}{3}\right)\cot\left(\frac{3\pi}{4}\right) + \cos\left(\frac{\pi}{3}\right)\cos(90^\circ) \\ &= \left(-\csc\left(\frac{\pi}{3}\right)\right)\left(-\cot\left(\frac{\pi}{4}\right)\right) + \cos\left(\frac{\pi}{3}\right)\cos(90^\circ) \\ &= -\frac{2}{\sqrt{3}}(-1) + \frac{1}{2}(0) = -\frac{2\sqrt{3}}{3}. \end{aligned}$$

**Q.2:** Evaluate  $W\left(\frac{15\pi}{3}\right)$ .

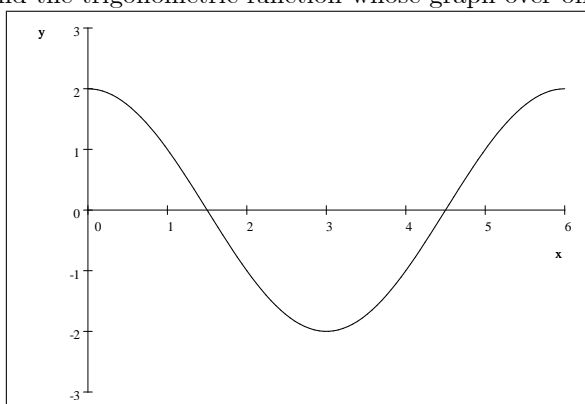
**Sol:** 
$$\begin{aligned} x &= \cos\left(\frac{15\pi}{3}\right) = \cos(5\pi) = \cos(\pi) = -1 \\ y &= \sin\left(\frac{15\pi}{3}\right) = \sin(5\pi) = \sin(\pi) = 0. \end{aligned}$$

**Q.3:** Sketch the graph of  $y = \left|2\cos\left(\frac{x}{2}\right)\right|$ . Show all steps.

**Sol:** Period  $P = \frac{\pi}{\frac{1}{2}} = 2\pi$ , Amplitude  $A = 2$ .



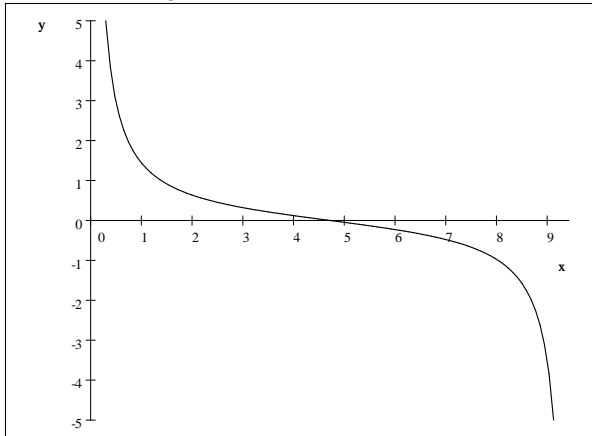
**Q.4:** Find the trigonometric function whose graph over one period is:



**Sol:** Period  $P = 6 = \frac{2\pi}{b} \Rightarrow b = \frac{\pi}{3}$   
 Amplitude  $A = 2 \Rightarrow a = 2$ ,  
 $f(x) = 2\cos\left(\frac{\pi}{3}x\right)$ .

**Q.5:** Sketch the graph of  $y = \frac{1}{2} \cot\left(\frac{x}{3}\right)$  over one period interval.

**Sol:** Period  $P = \frac{\pi}{\frac{1}{3}} = 3\pi$ ,



**Q.6:** Write period, amplitude, phase-shift and sketch the graph of  $y = 2 - 3 \sin\left(2x - \frac{\pi}{2}\right)$  over one full period of the function.

**Sol:** Period  $P = \frac{2\pi}{2} = \pi$ , Amplitude  $A = 3$ , Phase Shift  $F = -\frac{-\frac{\pi}{2}}{2} = \frac{\pi}{4}$ , Vertical Translation  $V = 2$ .

