

Q.1: Find the value of $\sec\left(-\frac{7\pi}{3}\right)\tan\left(\frac{11\pi}{4}\right) + \cos\left(\frac{22\pi}{3}\right)\sin(810^\circ)$

Sol:

$$\begin{aligned} \sec\left(-\frac{7\pi}{3}\right)\tan\left(\frac{11\pi}{4}\right) + \cos\left(\frac{22\pi}{3}\right)\sin(810^\circ) &= \sec\left(-\frac{\pi}{3}\right)\tan\left(\frac{3\pi}{4}\right) + \cos\left(\frac{4\pi}{3}\right)\sin(90^\circ) \\ &= \sec\left(\frac{\pi}{3}\right)\left(-\tan\left(\frac{\pi}{4}\right)\right) + \left(-\cos\left(\frac{\pi}{3}\right)\right)\sin(90^\circ) \\ &= 2(-1) + \left(-\frac{1}{2}\right)1 = -2 - \frac{1}{2} = -\frac{5}{2}. \end{aligned}$$

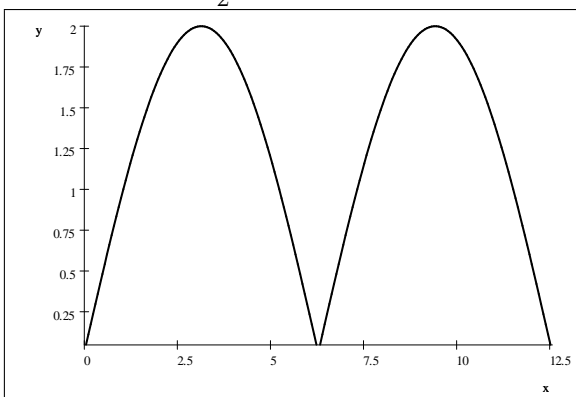
Q.2: Evaluate $W\left(\frac{11\pi}{3}\right)$.

Sol:

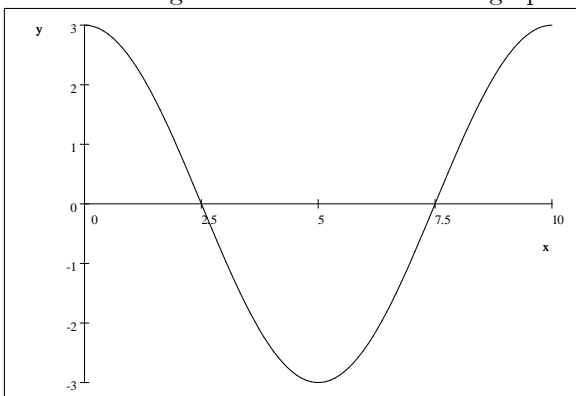
$$\begin{aligned} x &= \cos\left(\frac{11\pi}{3}\right) = \cos\left(\frac{5\pi}{3}\right) = \cos\left(\frac{\pi}{3}\right) = \frac{1}{2} \\ y &= \sin\left(\frac{11\pi}{3}\right) = \sin\left(\frac{5\pi}{3}\right) = -\sin\left(\frac{\pi}{3}\right) = -\frac{\sqrt{3}}{2}. \end{aligned}$$

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

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



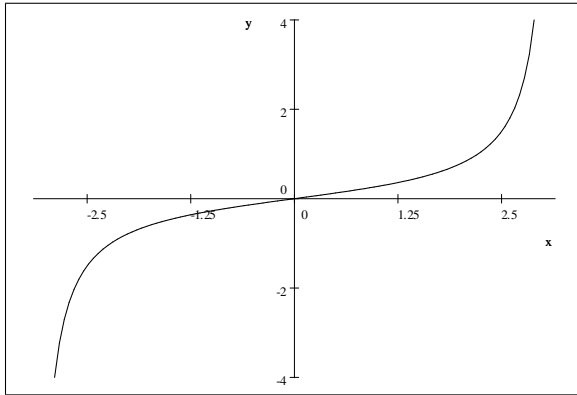
Q.4: Find the trigonometric function whose graph over one period is:



Sol: Period $P = 10 = \frac{2\pi}{b} \Rightarrow b = \frac{\pi}{5}$
 Amplitude $A = 3 \Rightarrow a = 3$,
 $f(x) = 3\cos\left(\frac{\pi}{5}x\right)$.

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

Sol: Period $P = \frac{\pi}{\frac{1}{2}} = 2\pi,$



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

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

