

Quiz 5 (20 pts.)

Name: KEY

Short Answer

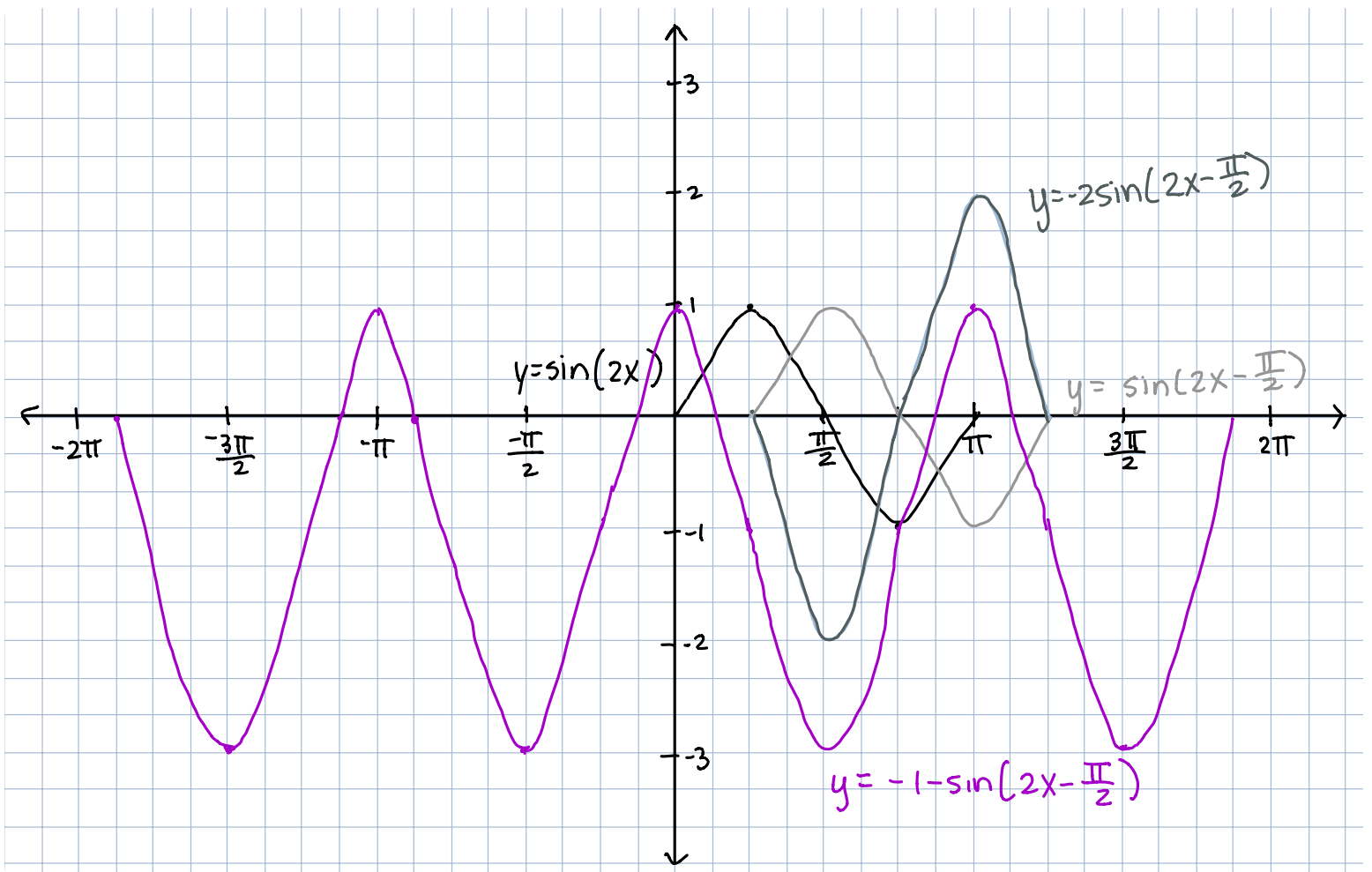
5.) (3 pts) Find the amplitude, period, and phase shift of $y = -1 - 2 \sin\left(2x - \frac{\pi}{2}\right)$.

amplitude = $|-2| = \boxed{2}$

period = $\frac{2\pi}{B} = \frac{2\pi}{2} = \boxed{\pi}$

phase shift = $-\frac{C}{B} = -\frac{\left(-\frac{\pi}{2}\right)}{2} = \frac{\frac{\pi}{2}}{2} = \frac{\pi}{2} \cdot \frac{1}{2} = \boxed{\frac{\pi}{4}}$

6.) (7 pts.) Graph $y = -1 - 2 \sin\left(2x - \frac{\pi}{2}\right)$.



7.) (4 pts) Where are the asymptotes of the graph $y = 2 \sec\left(\pi x - \frac{\pi}{2}\right)$?

$$\left. \begin{array}{l} \pi x - \frac{\pi}{2} = -\frac{\pi}{2} \\ \pi x = -\frac{\pi}{2} + \frac{\pi}{2} \\ \pi x = 0 \\ x = 0 \end{array} \right| \left. \begin{array}{l} \pi x - \frac{\pi}{2} = \frac{\pi}{2} \\ \pi x = \frac{\pi}{2} + \frac{\pi}{2} \\ \pi x = \frac{2\pi}{2} \\ \pi x = \pi \\ x = 1 \end{array} \right| \begin{array}{l} \text{asymptotes occur at } 0, 1, 2, \dots \\ \text{or just every } k \text{ where } k \in \mathbb{Z} \end{array}$$

8.) (6 pts.) Consider the function $y = 2 \csc(2x + \pi)$.

(a.) What is the period of the graph?

$$\text{period} = \frac{2\pi}{B} = \frac{2\pi}{2} = \boxed{\pi}$$

(b.) What is the phase shift of the graph?

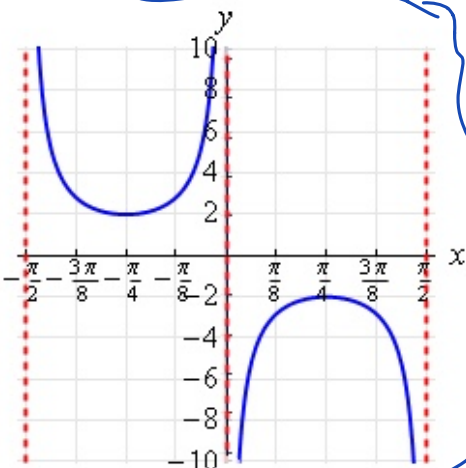
$$\text{phase shift} = -\frac{C}{B} = \boxed{\frac{-\pi}{2}}$$

(c.) Where are the vertical asymptotes?

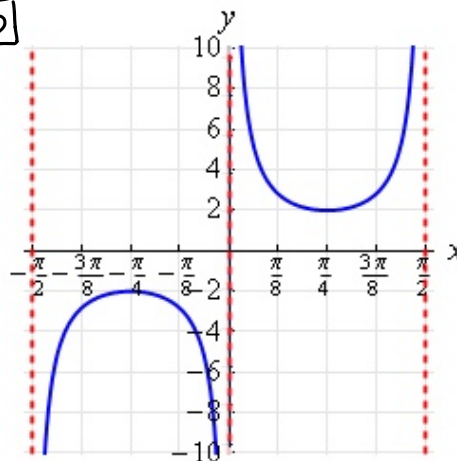
$$\left. \begin{array}{l} 2x + \pi = 0 \\ 2x = -\pi \\ x = -\frac{\pi}{2} \end{array} \right| \left. \begin{array}{l} 2x + \pi = \pi \\ 2x = \pi - \pi \\ 2x = 0 \\ x = 0 \end{array} \right| \begin{array}{l} \text{vertical asymptotes occur at} \\ x = 0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, \dots \text{ or just at} \\ \frac{k\pi}{2} \text{ where } k \in \mathbb{Z} \end{array}$$

(d.) Which of the graphs below represents the given curve?

A



B



C

