Name ___Key___

State the amplitude, period, phase shift and vertical shift of the following:

1. $y = \dfrac{8}{3}\cos\left(\dfrac{6x}{5}\right) + 2$ $y = \dfrac{8}{3}\cos\left(\dfrac{6}{5}x\right) + 2$

   A ___$\dfrac{8}{3}$___   P ___$\dfrac{5\pi}{3}$___   P.S. ___—___   V.S. ___2___

   $\dfrac{2\pi}{B} = \dfrac{6}{5}$

   $\dfrac{2\pi}{\frac{6}{5}} = B$

   $\dfrac{10\pi}{6} = B$

2. $y = -2.3\sin(3x + \pi)$ $y = -2.3\sin\left(3\left(x + \dfrac{\pi}{3}\right)\right)$

   A ___2.3___ flip   P ___$\dfrac{2\pi}{3}$___   P.S. ___$-\dfrac{\pi}{3}$___   V.S. ___—___
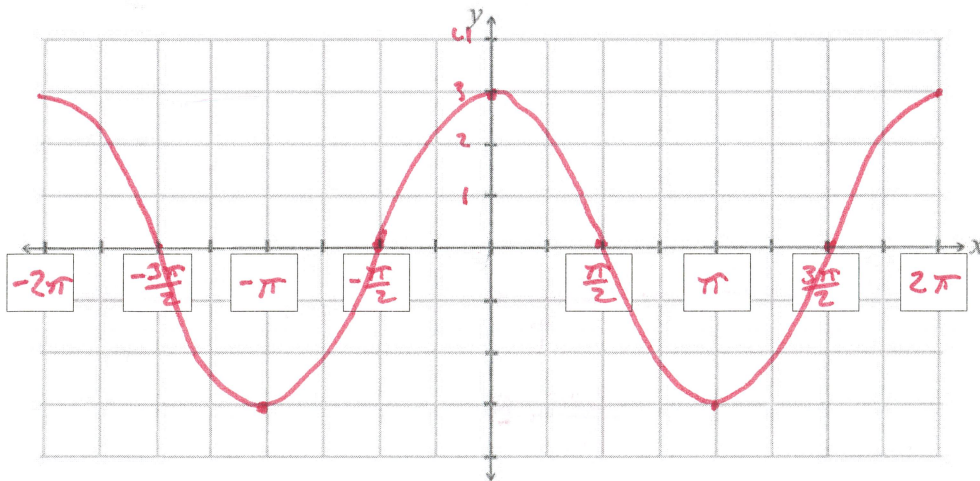
   $\dfrac{2\pi}{B} = 3$

3. $y = \tan\left(2x + \dfrac{\pi}{4}\right)$ $y = \tan\left(2\left(x + \dfrac{\pi}{8}\right)\right)$

   A ___1___   P ___$\dfrac{\pi}{2}$___   P.S. ___$-\dfrac{\pi}{8}$___   V.S. ___—___
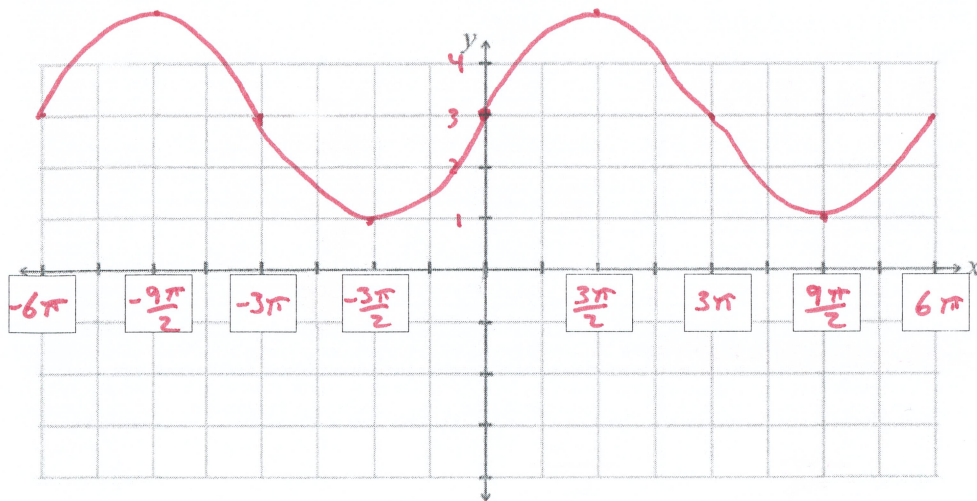
Graph each equation.

4. $y = -3\cos(x + \pi)$

5. $y = 2\sin\left(\dfrac{x}{3}\right) + 3$

$y = 2\sin\left(\tfrac{1}{3}x\right) + 3$
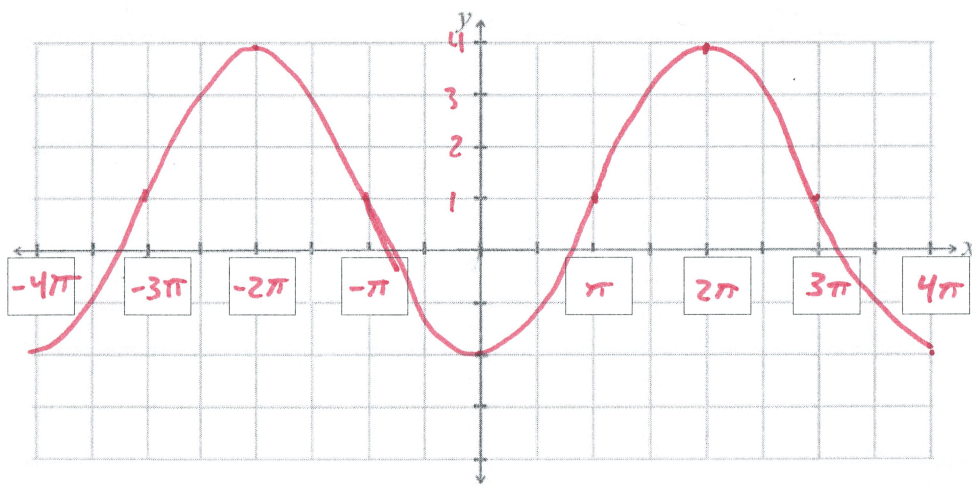
$\dfrac{2\pi}{\frac{1}{3}} = 6\pi$

Labels on x-axis: -6π, $-\dfrac{9\pi}{2}$, -3π, $-\dfrac{3\pi}{2}$, $\dfrac{3\pi}{2}$, 3π, $\dfrac{9\pi}{2}$, 6π

6. $y = -3\cos\left(\dfrac{x}{2} - 2\pi\right) + 1$

$y = -3\cos\left(\tfrac{1}{2}(x - 4\pi)\right) + 1$

$\dfrac{2\pi}{\frac{1}{2}} = 4\pi$

Labels on x-axis: -4π, -3π, -2π, $-\pi$, π, 2π, 3π, 4π

7. Write an equation for a <u>sine function</u> with <u>amplitude 2.4</u>, <u>period 8.2</u>, phase shift <u>$\dfrac{\pi}{3}$</u> and <u>vertical shift 0.2</u>.

$\dfrac{2\pi}{8.2} = B$

$y = 2.4\sin\left(\dfrac{\pi}{4.1}\left(x - \dfrac{\pi}{3}\right)\right) + .2$