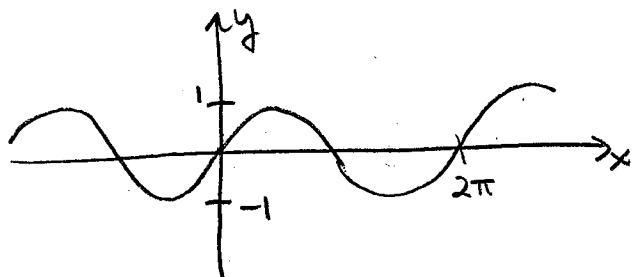


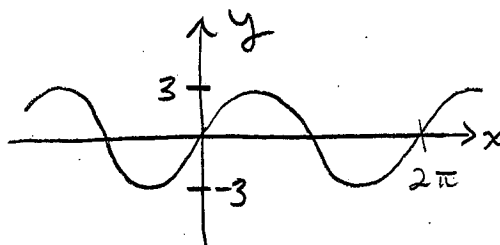
(1) [10 points] Carefully sketch the curve $y = 3 \sin(\pi x + \pi) - 5$. Show at least two complete cycles and indicate the scale on the horizontal and vertical axes.

$$y = 3 \sin[\pi(x+1)] - 5$$

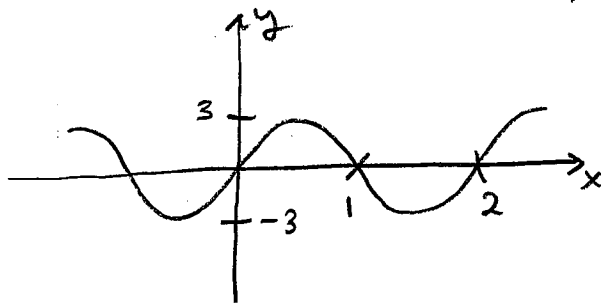
① $y = \sin(x)$



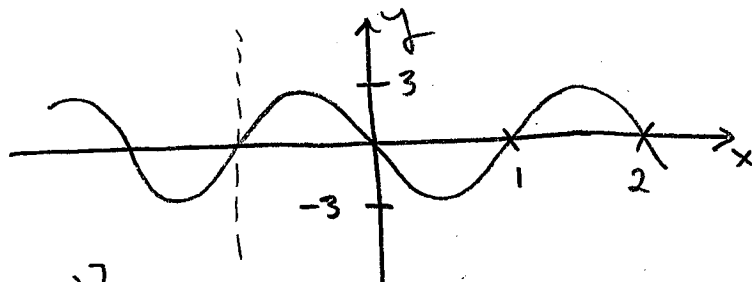
② $y = 3 \sin(x)$



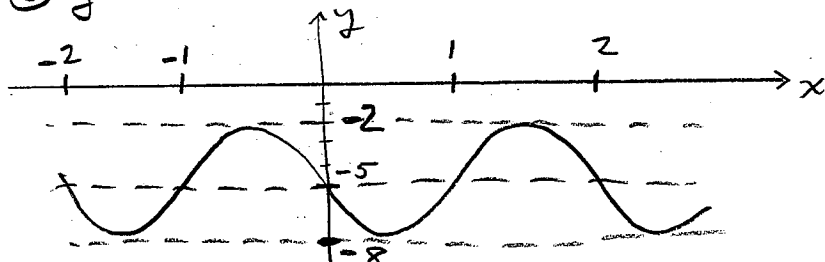
③ $y = 3 \sin(\pi x)$ } Period $T = \frac{2\pi}{\pi} = 2$



④ $y = 3 \sin[\pi(x+1)]$



⑤ $y = 3 \sin[\pi(x+1)] - 5$



(2) [5 points] Determine the period, amplitude and phase shift of the function graphed in question (1).

Period $T = \frac{2\pi}{\pi} = 2$

amplitude = $|3| = 3$

phase-shift = -1