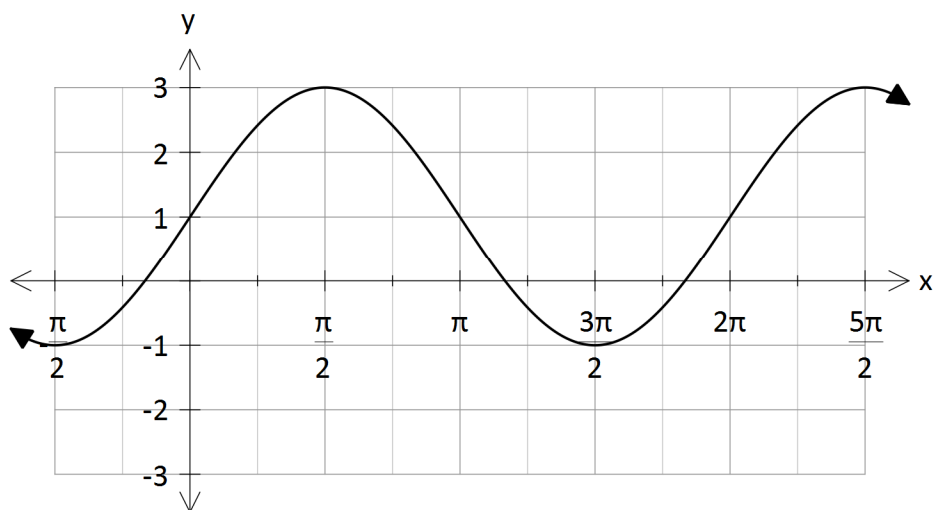# Pre-Calculus 40S Practice (Graphs of Trig Functions)

1. Sketch the graph of $y = 2\cos\frac{1}{2}(x) + 1$ from $0 \leq x \leq 2\pi$.

2. Sketch the graph of $y = -\frac{1}{3}\sin\left(x - \frac{\pi}{4}\right) + 2$ from $-2\pi \leq x \leq 2\pi$. Then, state the amplitude, period, phase shift, and the equation of the median of this function.

3. Sketch the graph of $y = \cos\pi(x - 3)$ from $0 \leq x \leq 4\pi$.

4. Give equations of a sinusoidal function in terms of **BOTH** $\sin x$ and $\cos x$ that would match the graph given below:
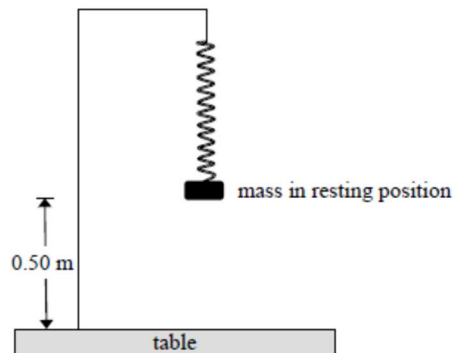

5. Give equations of a sinusoidal function in terms of **BOTH** $\sin x$ and $\cos x$ that would match the graph given below:
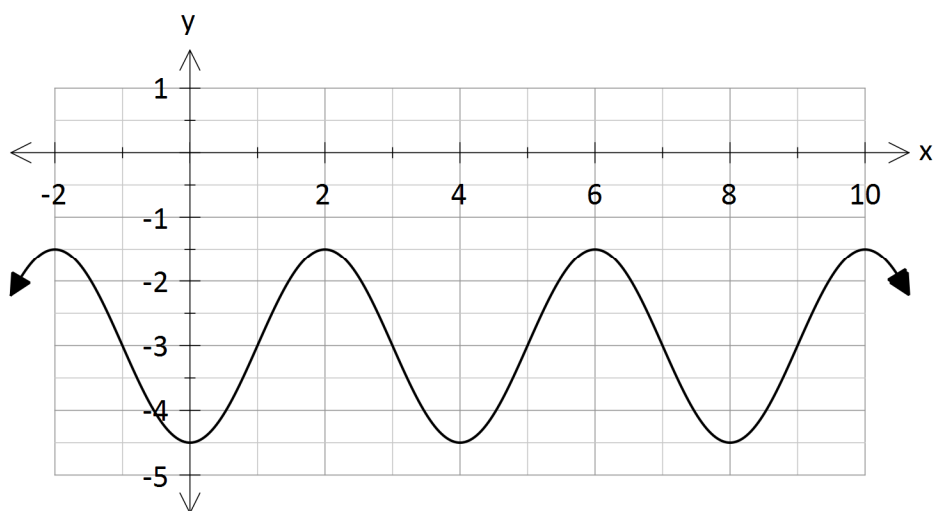
6. Give equations of a sinusoidal function in terms of **BOTH** $\sin x$ and $\cos x$ that would match the graph given below:
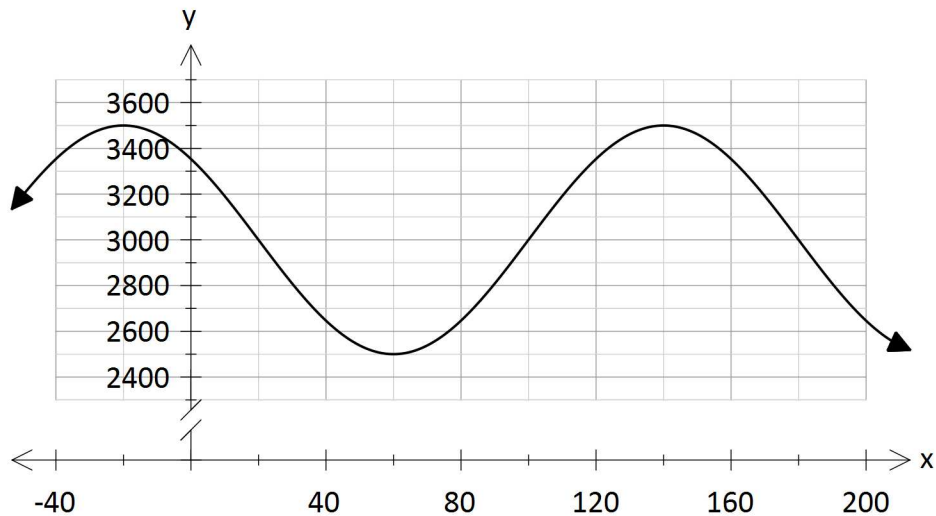
7. A mass is suspended by a spring and is in a resting position 0.50 metres above a table.

The mass is pulled down 0.40 metres and is then released. The following information is obtained:

- It takes 1.20 seconds for the mass to return to its lowest position.
- The mass reaches a maximum height of 0.90 metres.

Determine a sinusoidal equation that represents the distance of the mass with respect to the table as a function of time since it was released. Show your work.