Write the equation of the sine graph given below (use radian measure)

\[ y = 8 \sin\left(\frac{\pi}{2} \theta\right) \]

Write the equation of the cosine graph given below: (use radian measure)

\[ y = 3 \cos\left(\frac{\pi}{2} \theta\right) \]

The equation \( P = 100 + 20 \sin 2\pi t \) models a person’s blood pressure \( P \) in mm of mercury. \( t \) is seconds) The blood pressure oscillates 20 mm above and below 100 mm, which means that the blood pressure is 120 over 80. This function has a period of 1 second, which means that the person’s heart beats 60 times a minute.

a. Find the blood pressure at:

\[
\begin{align*}
\text{t}=0 & \quad 100 \\
\text{t}=0.25 & \quad 120 \\
\text{t}=0.5 & \quad 100 \\
\text{t}=0.75 & \quad 80 \\
\text{t}=1 & \quad 100 \\
\end{align*}
\]

b. During the first second, when was the blood pressure at a maximum? Minimum?

Maximum .25 seconds
Minimum .75 seconds
Buoy Problem

* Depending on your graph, there are 2 options

Amp: 1.5
Midline: y = 0
Period: 10 sec.

Cosine is best choice

Radians \( \frac{2\pi}{B} = 10 \quad B = \frac{\pi}{5} \)
\[ y = 1.5 \cos \left( \frac{\pi}{5} \theta \right) \]

Degrees \( \frac{360}{B} = 10 \quad B = 36 \)
\[ y = 1.5 \cos (36 \theta) \]

Amp: 1.5
Midline: y = 1.5
Period: 10 sec.

Radians \( \frac{2\pi}{B} = 10 \quad B = \frac{\pi}{5} \)
\[ y = 1.5 \cos \left( \frac{\pi}{5} \theta \right) + 1.5 \]

Degrees \( \frac{360}{B} = 10 \quad B = 36 \)
\[ y = 1.5 \cos (36 \theta) + 1.5 \]