# MISSION B: BEACHED SAILBOAT

YOU GOT A CALL TO GO TO RAY'S ISLAND TO RESCUE A SAILBOAT THAT HAS BEEN BEACHED. YOU ARE GIVEN THE FOLLOWING DETAILS OF THIS MISSION. THE TIDES AT RAY'S ISLAND ARE MODELLED BY THE EQUATION.

$$h = 4cos\left(\frac{2\pi}{12.4}(t - 6.8)\right) + 3.2$$

WHERE HEIGHT, $h$, IN METRES, OF THE WATER AT TIME, $t$, IN HOURS, AFTER MIDNIGHT.

**It's your mission to rescue this sailboat but first you must work out the following questions below.**

I. Sketch a graph of the function.

II. If the sailboat needs a depth of $1.5m$ to be moved out of the bay at Ray's Island, what is the first estimated <u>military time,</u> after midnight, that you will be able to move the sailboat?