Suppose we set our clocks so that the mass reaches the water at $t = 0$. Then $t_0 = 0$, and we have

$$z(t) = A\left[1 - \cos(\omega t)\right].$$

What is A? There are two ways to find out:

a) We have

$$\ddot{z} = \omega^2 A \cos(\omega t)$$

and we will have $\ddot{z} = 0$ when $\omega t = \pi/2$, and then

$$z = A\left[1 - \cos(\pi/2)\right] = A.$$

We know that this is also the equilibrium height because then $F = 0 \Rightarrow \ddot{z} = 0$.

Thus, $A = 22.75$ meters.

b) Alternatively, we have

$$\ddot{z} = \omega^2 A \cos(\omega t) \quad \text{and} \quad z\big|_{t=0} = 0.$$

Thus $\ddot{z}\big|_{t=0} = \omega^2 A =$ acceleration when