Given $h(t) = h_0 + a\cos(\Omega t) + b\sin(\Omega t)$

then $h'(t) = -a\Omega\sin(\Omega t) + b\Omega\cos(\Omega t)$.

To find the maximum and minimum points, we set $h'(t) = 0$:

$$-a\Omega\sin(\Omega t) + b\Omega\cos(\Omega t) = 0$$

$\div \Omega$

$$\Rightarrow -a\sin(\Omega t) + b\cos(\Omega t) = 0$$

$$\Rightarrow a\sin(\Omega t) = b\cos(\Omega t)$$

$$\Rightarrow \frac{\sin(\Omega t)}{\cos(\Omega t)} = \frac{b}{a} \Rightarrow \tan(\Omega t) = \frac{b}{a}$$

$$\Rightarrow \Omega t = \arctan\left(\frac{b}{a}\right) + 180n, \; n \in \mathbb{N}$$

(arctan in degrees)

$$\Rightarrow t = \frac{1}{\Omega}\arctan\left(\frac{b}{a}\right) + 180n.$$

And to determine whether $h(t)$ is a high or low tide:

$$h''(t) = -a\Omega^2\cos(\Omega t) - b\Omega^2\sin(\Omega t)$$

$h''(t) > 0 \Rightarrow$ minimum $\Rightarrow$ low tide

$h''(t) < 0 \Rightarrow$ maximum $\Rightarrow$ high tide