M1-SOAC TD2a

Chapter 2: Surface Waves
Deep and Shallow Water waves

Question a:

From the quay, you see **a piece of driftwood** in the ocean 25 m away. You really want this piece of driftwood. But the waves are 0.5 m high and you can't swim. The waves arrive with a wavelength of about 10 m but the piece of wood only approaches slowly.
How many waves have to arrive before you can finally pick up your piece of driftwood?

Question b:

Write down expressions for the **depth-dependence of vertical and horizontal wave amplitudes** A_z et A_x. If the surface vertical amplitude is 10 cm and the wavelength is 30 m, then calculate the values of A_z and A_x at a depth of 2 m if the water is (i) deep and (ii) shallow (bottom depth = 3 m).