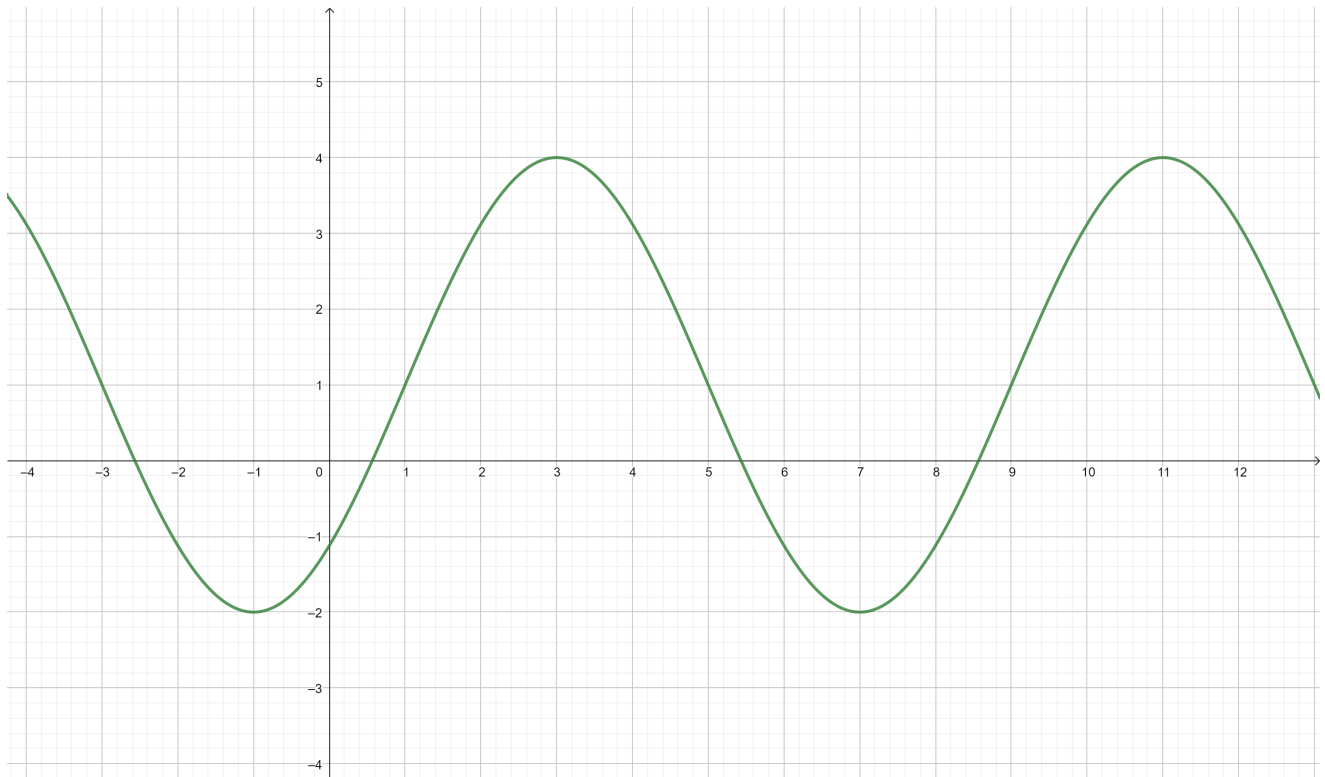


Name:

1.

(4 points)

The following diagram shows part of the graph of $y = a \sin(b(x - c)) + d$.



Find the values of a , b , c , d .

2. (4 points)

Solve the following equations:

a) $2 \cos x + 1 = 0$

b) $\tan^2 x = 3$

3. (4 points)

The depth of water, measured in metres, in an harbour t hours after 6 am is given by the formula:

$$d(t) = 3 \cos\left(\frac{\pi}{12}t\right) + 4$$

a) State the minimum depth of water and the first time after 6 am at which the minimum occurs.

b) The ship is at the harbour at 6 am and needs to leave before the water depth drops below 2.5 metres. Calculate how much time does it have to leave the harbour.