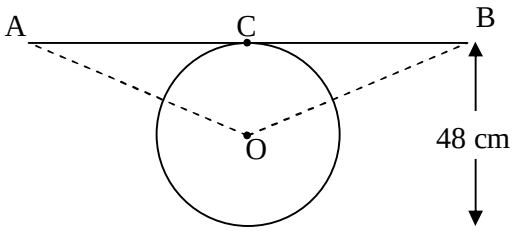
N5 Relationships Extended Practice Test 1

Q1. **(a)** A straight line has equation $4y$ ï $3x = 6$.
State the gradient and the y-intercept point for this line.
(b) Write down the equation of the line with gradient ï ½ which has the same y ï intercept point as the line above.

Q2. A circular bathroom mirror, diameter 48 cm, is suspended from the ceiling by <u>two</u> equal wires from the centre of the mirror, O.
The ceiling, AB, is a tangent to the circle at C. AC is 45 cm.

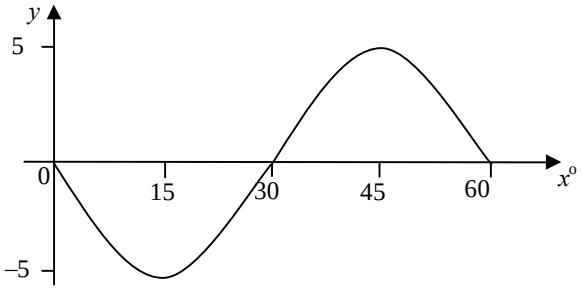


Calculate the total length of wire used to hang the mirror.

Q3. An orienteering course has two different tracks. One follows the line $y = 2x + 1$ and the other follows the line $y = 4x$ ï 3.

Find the coordinates of the point where the paths cross.

Q4. The diagram shows the graph of $y = a \sin bx^{o}$.



Write down the values of a and b.

Q5. A formula to convert temperature from degrees Celsius to degrees Farenheit is

$$F = \frac{9}{5}C + 32\,.$$

Change the subject of the formula to C.

Q6. If $\sin x^{o} = \frac{1}{3}$ and $\cos x^{o} = \frac{2\sqrt{5}}{3}$ find the value of $\tan x^{o}$, giving your answer with a rational denominator.

Q7. For the quadratic function $y = (¾ - x)^2 + \frac{5}{6}$, write down
a. the turning point
b. its nature
c. the equation of the axis of symmetry

Q8. Solve the equation

$$13 \cos x^{o} + 7 = 0, \quad 0 \leq x \leq 360$$

Q9. Sketch the graph of $y = \tan (x - 30)^{o}$, $0 \leq x \leq 360$

Q10. Solve the quadratic equation

$$9x^2 + 11x - 5 = 0$$

using an appropriate formula.
Give your answers correct to 1 decimal place.

End of question paper