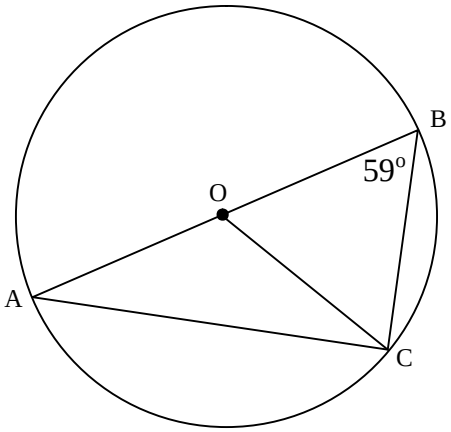
N5 Relationships Extended Practice Test 2

1.

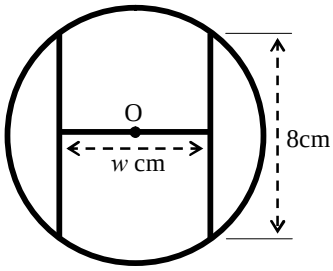


AB is a diameter and O is the centre of the circle shown opposite.

If angle ABC = 59°,
find the size of angle ACO.

2. Find the equation of the straight line which passes through the point (0,5) and is parallel to the line with equation $3x + 2y = 12$.

3. The logo for the ‘Overseas Holidays’ holiday company consists of a letter ‘H’ inscribed in a circle, centre O as shown in the diagram.



The diameter of the circle is 10cm.
If the height of the ‘H’ is 8cm, calculate its width ‘w’ cm.

4. Two friends were collecting tokens, of different point values, from cereal packets to send away for a DVD player. They needed a total of 240 points each.

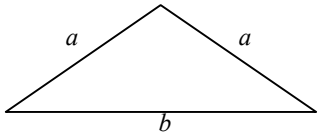
Jennifer saved 20 red and 20 yellow tokens.

Molly saved 25 yellow and 13 red.

What is the points value of each token?

5. The formula for finding the perimeter of this isosceles triangle is:

$P = 2a + b$

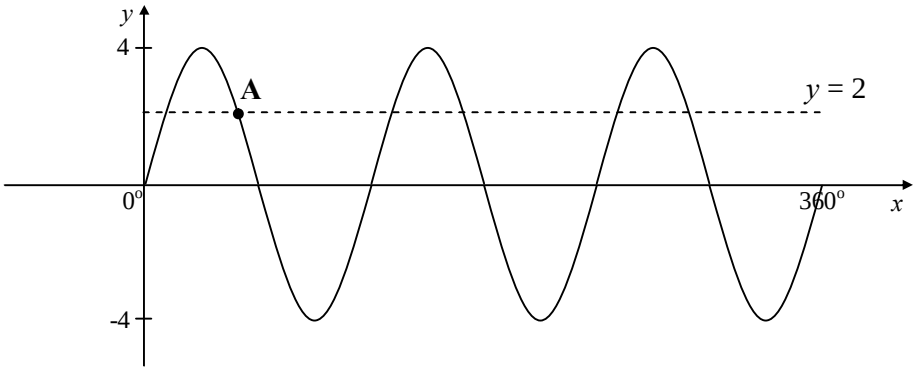


Change the subject of the formula to a.

6. Simplify: $\dfrac{4-4\cos^2 x}{3\sin x}$.

7. Sketch the graph of the function $y = \sin(x - 45)^\circ$ for $0 \le x \le 360°$

8. The graph has equation of the form $y = \boldsymbol{a} \sin \boldsymbol{b}\, x$



(a) Write down the values of ***a*** and ***b***.

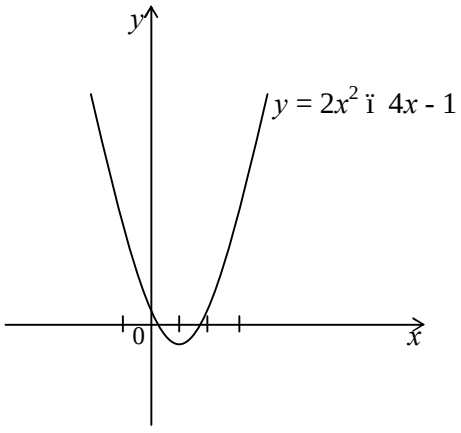
The broken line in the diagram has equation $y = 2$.

(b) Find, algebraically, the coordinates of the point **A**.

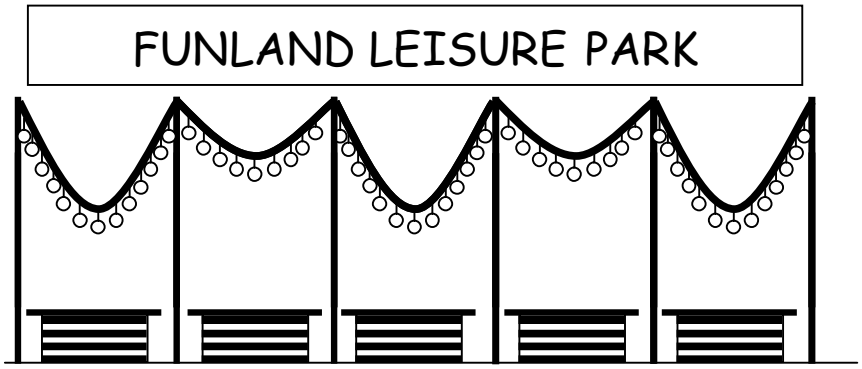
9. The parabola in the diagram has equation

$$y = 2x^2 - 4x - 1.$$

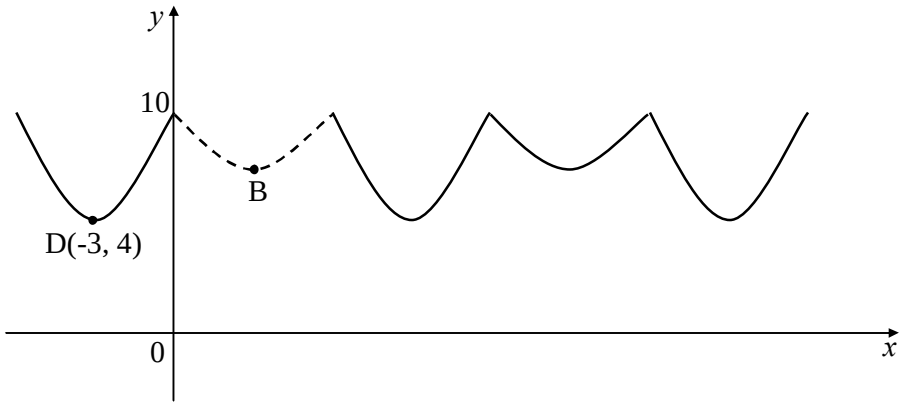
Find the x-coordinates of the points where the graph crosses the x-axis, giving your answers correct to 1 decimal place.



10. The 5 entrance booths to a fun park have coloured lights strung across them as shown in the diagram.



The strings of lights form parabolas which can be represented on suitable axes as shown.



The parabola shown as a broken line has equation $y = \frac{1}{3}(x-3)^2 + 7$.

(a) Write down the coordinates of, B, the minimum turning point of this parabola.

(b) What is the equation of its axis of symmetry?

(c) D is the point (-3, 4). Find the equation of the parabola with this turning point.

End of question paper