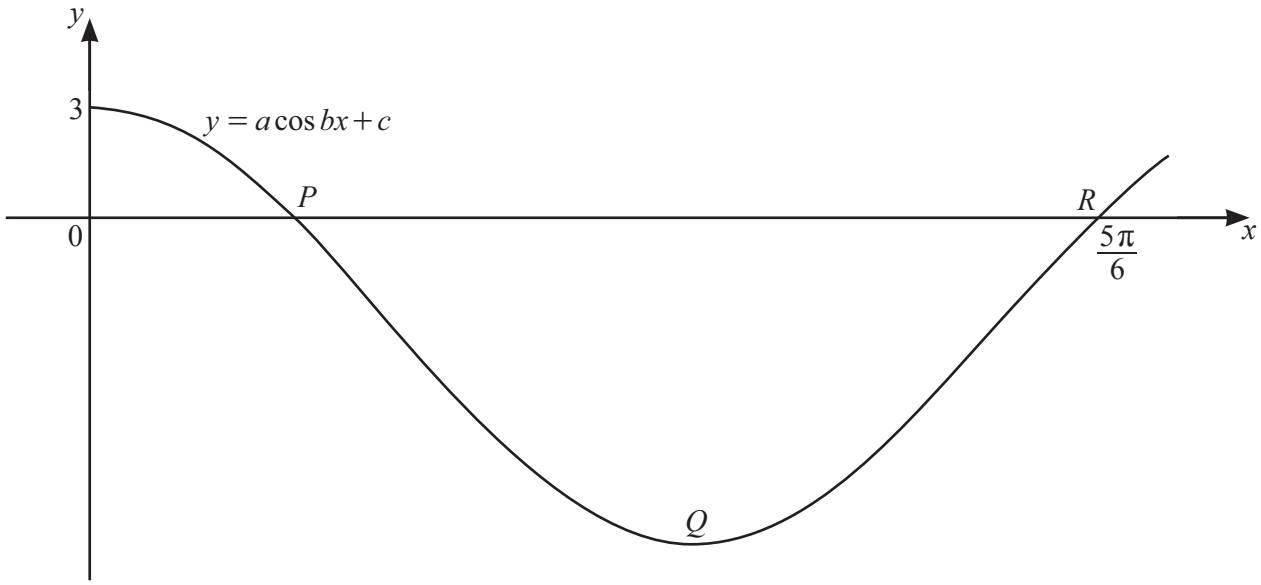
8



The graph shows the curve $y = a\cos bx + c$, for $0 \leqslant x \leqslant 2.8$, where a, b and c are constants and x is in radians. The curve meets the y-axis at (0, 3) and the x-axis at the point P and point $R\left(\frac{5\pi}{6}, 0\right)$.

The curve has a minimum at point Q. The period of $a\cos bx + c$ is π radians.

(a) Find the value of each of a, b and c. [4]

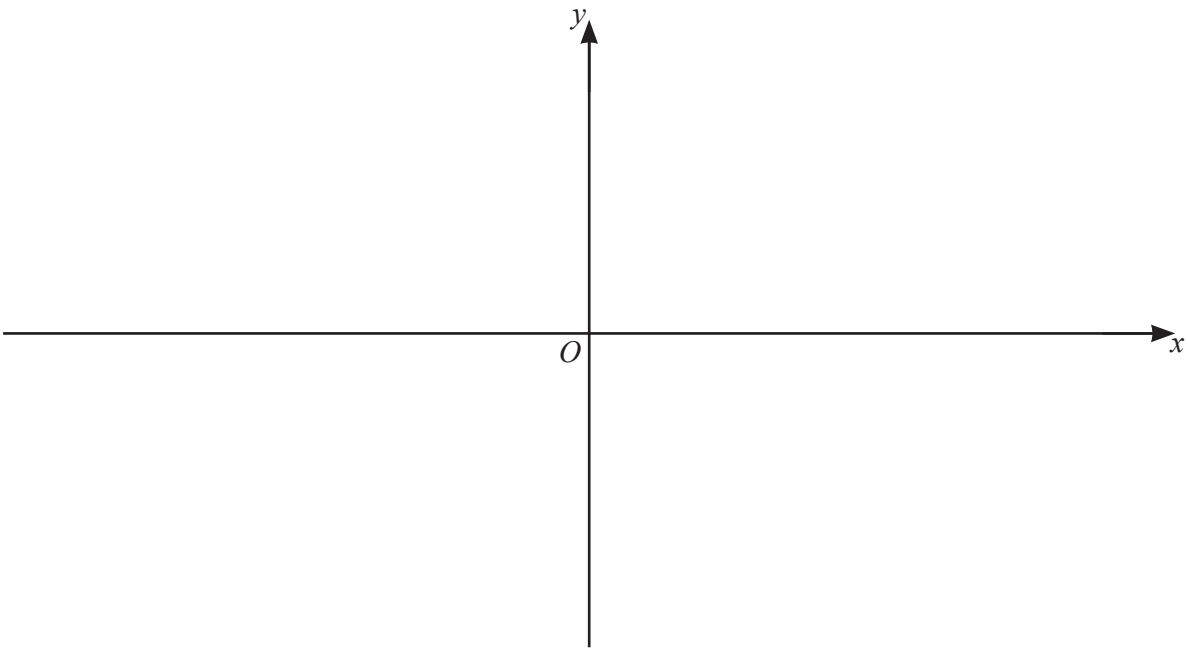
(b) Find the coordinates of P. [1]

(c) Find the coordinates of Q. [2]

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9 **(a)** Show that the equation of the curve $y = (x^2 - 4)(x - 2)$ can be written as $y = x^3 + ax^2 + bx + 8$, where a and b are integers. Hence find the exact coordinates of the stationary points on the curve. [4]

(b) On the axes, sketch the graph of $y = |(x^2 - 4)(x - 2)|$, stating the intercepts with the coordinate axes. [4]



(c) Find the possible values of the constant k for which $|(x^2 - 4)(x - 2)| = k$ has exactly 4 different solutions. [2]