

Trigonometric Equations

1. Solve the following equations.

(a) $2\sin 2x + 1 = 0$ $0 \leq x \leq 360$

(b) $2\cos 2x + \sqrt{3} = 2\sqrt{3}$ $0 \leq x \leq 2\pi$

(c) $3\tan^2 x - 1 = 0$ $0 \leq x \leq 2\pi$

(d) $3\cos^2 x - 2\cos x - 1 = 0$ $0 \leq x \leq 360$

(e) $4\tan 3x + 6 = 9$ $0 \leq x \leq 360$

(f) $4 + 5\sin 3x = 3$ $0 \leq x \leq 180$

(g) $6\tan^2 x - 7\tan x = -2$ $0 \leq x \leq 360$

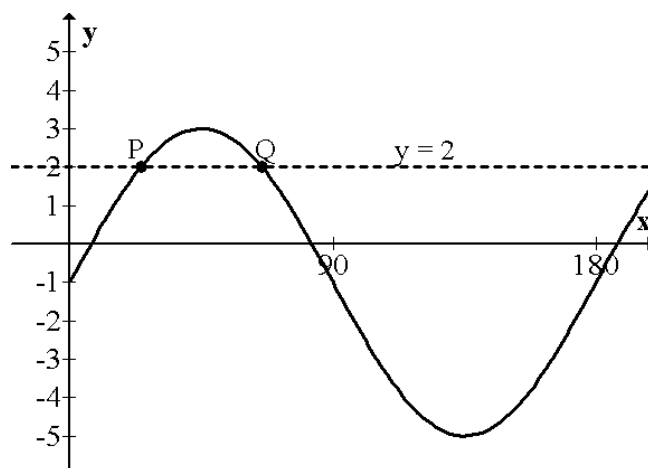
(h) $4\sin^2 x - 1 = 2$ $0 \leq x \leq \pi$

(i) $6\sin 2x - 1 = -3$ $0 \leq x \leq 180$

(j) $6\sin^2 x - 5\sin x = 6$ $0 \leq x \leq 360$

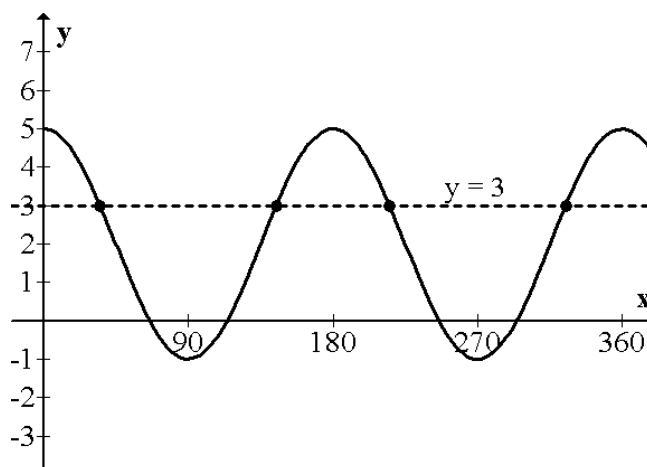
2. (a) The diagram shows the graph of $y = a\sin bx + c$.
Write down the value of a, b and c.

(b) Find the coordinates of P and Q, the points of intersection with this curve and the line $y = 2$.

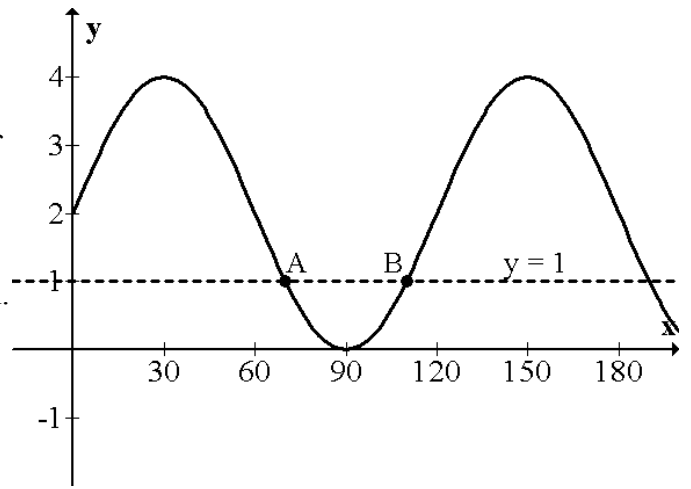


3. (a) The diagram shows the graph of $y = a\cos bx + c$.
Write down the values of a, b and c.

(b) Find the points of intersection of the line $y = 3$ and this curve.

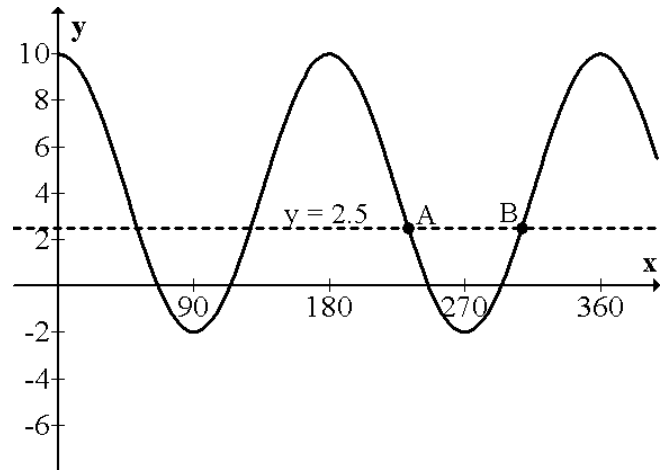


4. (a) The diagram opposite shows the graph of $y = p \sin qx + r$.
Write down the equation of this graph.



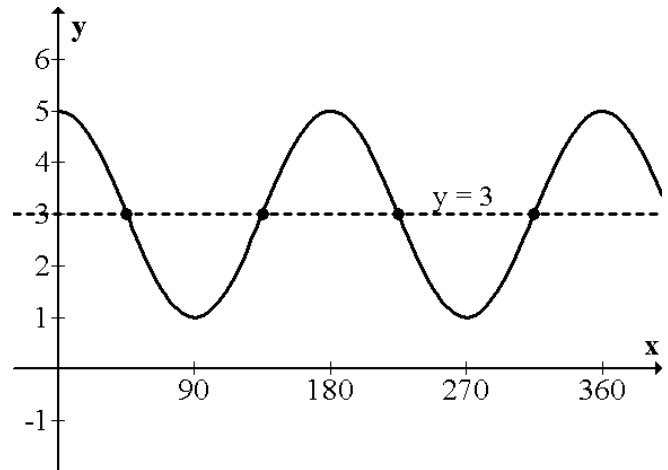
- (b) The line $y = 1$ is drawn on the same graph.
Find the coordinates of A and B.

5. (a) The diagram opposite shows the graph of $y = a \cos bx + c$.
Write down the equation of this graph.



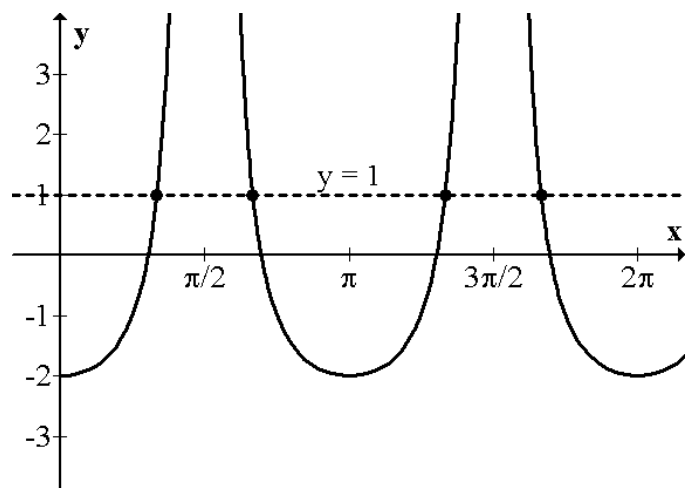
- (b) Find the coordinates of A and B,
points of intersection of the curve and
the line $y = 2.5$.

6. The diagram shows the graph of $y = 4 \cos^2 x + 1$.



- Find the points of intersection of
this curve and the line $y = 3$ in
the range $0 \leq x \leq 360$

7. The diagram shows the graph of $y = \tan^2 x - 2$.



- Find the points of intersection of
this curve and the line $y = 1$ in
the range $0 \leq x \leq 2\pi$.