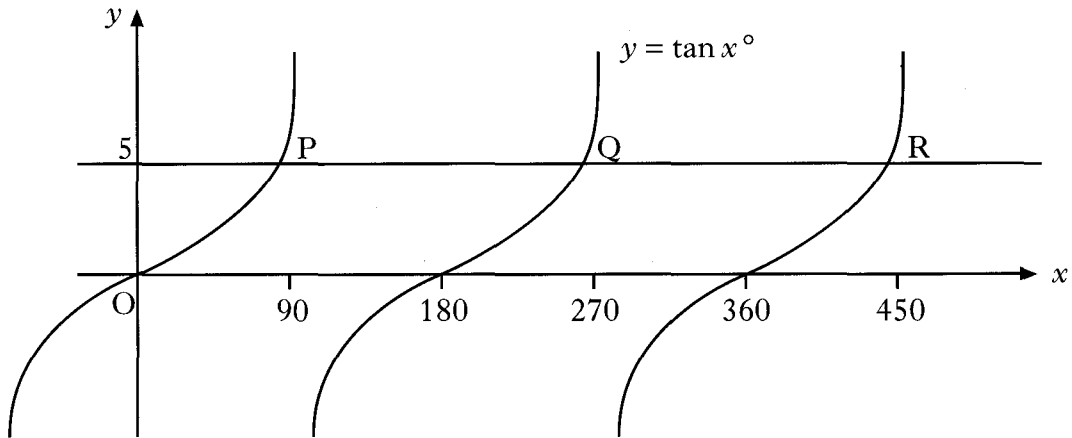


Trig. Graphs & Equations

- 12.** The diagram shows part of the graph of $y = \tan x^\circ$.
The line $y = 5$ is drawn and intersects the graph of $y = \tan x^\circ$ at P and Q.



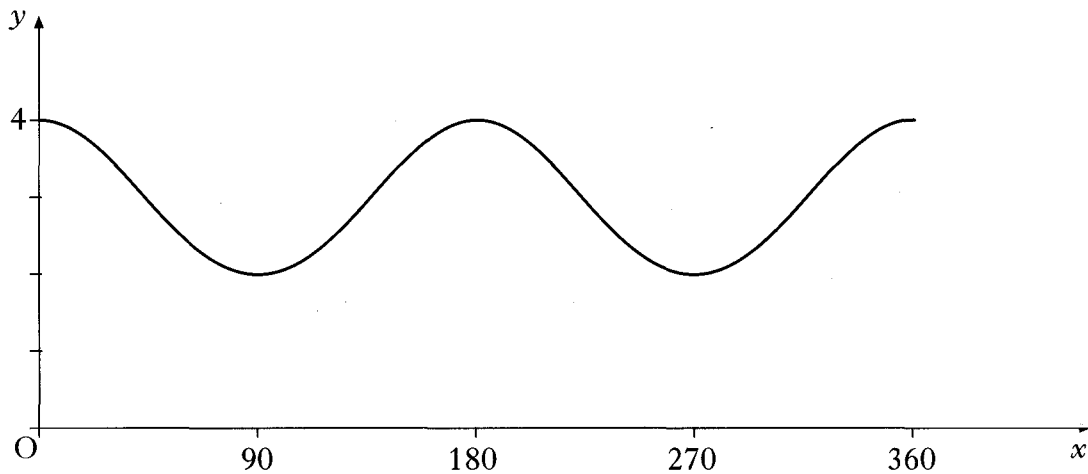
- (a) Find the x -coordinates of P and Q.
(b) Write down the x -coordinate of the point R, where the line $y = 5$ next intersects the graph of $y = \tan x^\circ$.

2008 P2

3
1

Ans (a) $78.7^\circ, 258.7^\circ$ (b) 438.7°

- 13.** Part of the graph of $y = \cos bx^\circ + c$ is shown below.

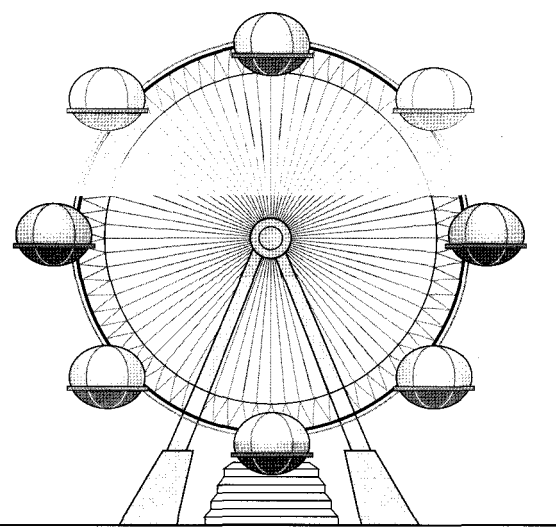


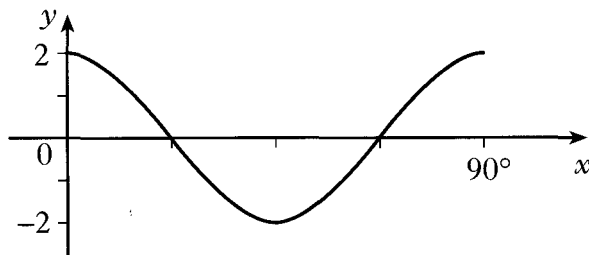
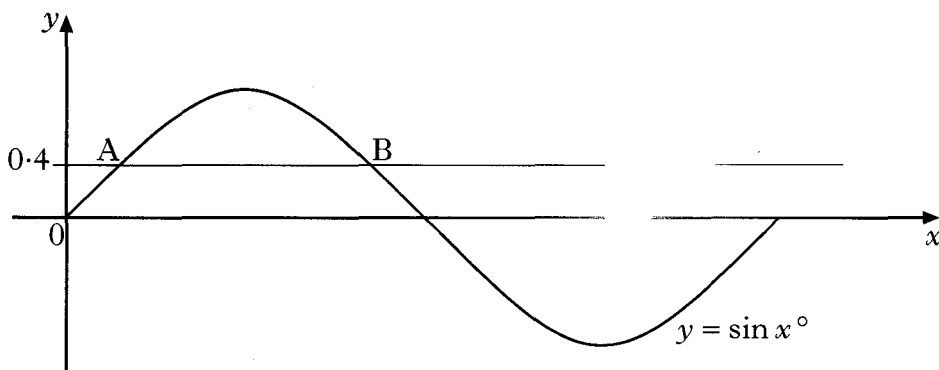
Write down the values of b and c .

2007 P1

2

Ans $b = 2, c = 3$

2007 P2	<p>10. Solve algebraically the equation</p> $5 \cos x^\circ + 4 = 0, \quad 0 \leq x < 360.$	3	
Ans	143.1° , 216.9°		
2006 P2	<p>10. Emma goes on the “Big Eye”.</p> <div style="text-align: center;">  </div> <p>Her height, h metres, above the ground is given by the formula</p> $h = -31 \cos t^\circ + 33$ <p>where t is the number of seconds after the start.</p> <p>(a) Calculate Emma’s height above the ground 20 seconds after the start.</p> <p>(b) When will Emma first reach a height of 60 metres above the ground?</p> <p>(c) When will she next be at a height of 60 metres above the ground?</p>	2	3
Ans	(a) 3.87 m (b) 150.6 seconds (c) 209.4 seconds		
2005 P2	<p>11. (a) Solve algebraically the equation</p> $\sqrt{3} \sin x^\circ - 1 = 0 \quad 0 \leq x < 360.$ <p>(b) Hence write down the solution of the equation</p> $\sqrt{3} \sin 2x^\circ - 1 = 0 \quad 0 \leq x < 90.$	3	1
Ans	(a) 35.3°, 144.7° (b) 17.6°, 72.4°		

2004 P1	<p>9. The graph of $y = a \cos bx^\circ$, $0 \leq x \leq 90$, is shown below.</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Write down the values of a and b.</p>		2
Ans	$a = 2$, $b = 4$		
2004 P2	<p>10. Solve algebraically the equation</p> $4 \sin x^\circ + 1 = -2 \quad 0 \leq x < 360.$		3
Ans	228.6 degrees, 311.4 degrees		
2002 P2	<p>8. The diagram shows part of the graph of $y = \sin x^\circ$.</p> <div style="text-align: center;">  </div> <p>The line $y = 0.4$ is drawn and cuts the graph of $y = \sin x^\circ$ at A and B. Find the x-coordinates of A and B.</p>		3
Ans	A 23.6 degrees, B 156.4 degrees		
2001 P2	<p>7. Solve algebraically the equation</p> $\tan 40^\circ = 2 \sin x^\circ + 1 \quad 0 \leq x < 360.$		3
Ans	184.6 degrees, 355.4 degrees		

2000 P2	<p>6. Triangle ABC has an area of 14 square centimetres. AB is 6 centimetres and AC is 7 centimetres. Calculate the possible sizes of angle BAC.</p>	4
Ans	41.8 degrees, 138.4 degrees	
2000 P2	<p>9. The height, H metres, of the tide-mark in a harbour is given by the formula</p> $H = 14 + 3 \cos(30n)^\circ$ <p>where n is the number of hours after midnight.</p> <p>(a) Find the height of the tide-mark at 2 am.</p> <p>(b) When, after midnight, is the first time that the height of the tide-mark is 12.5 metres?</p>	2 3
Ans	(a) 15.5m (b) 4am or 0400hours	