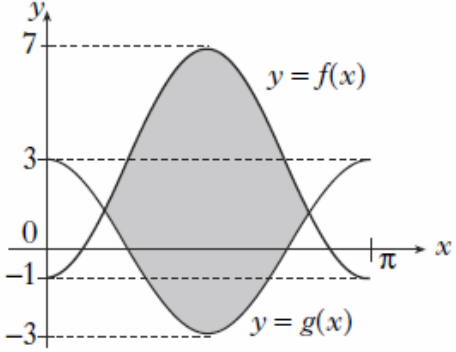
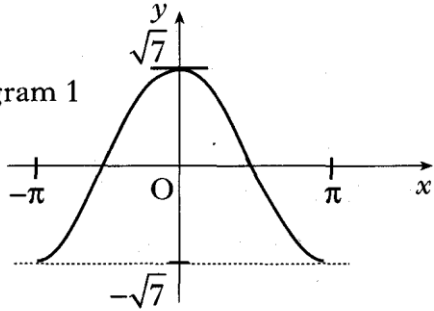
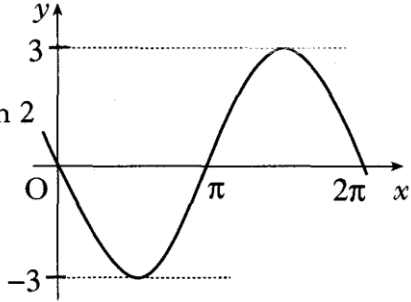
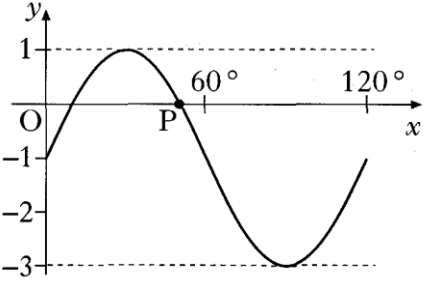
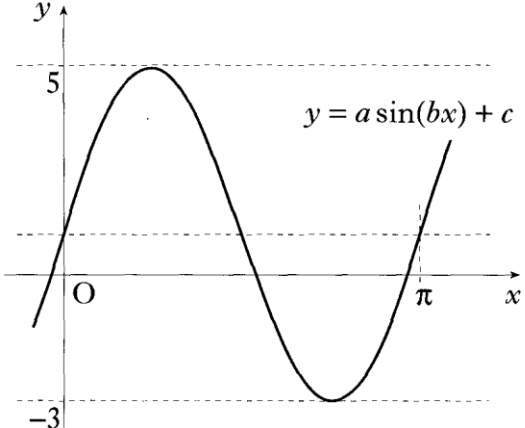
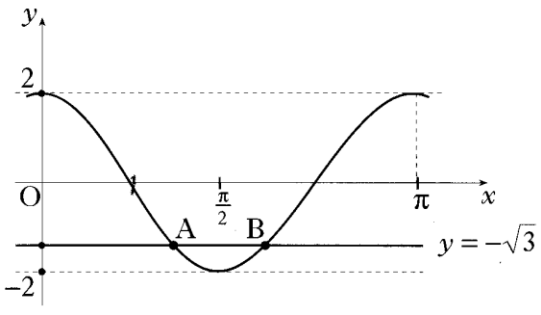


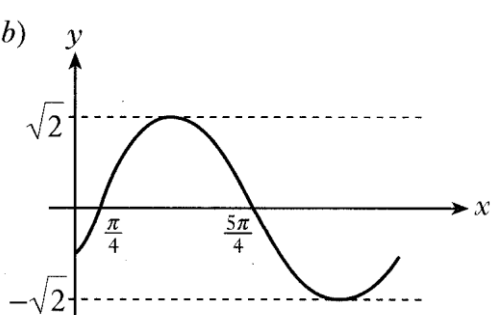
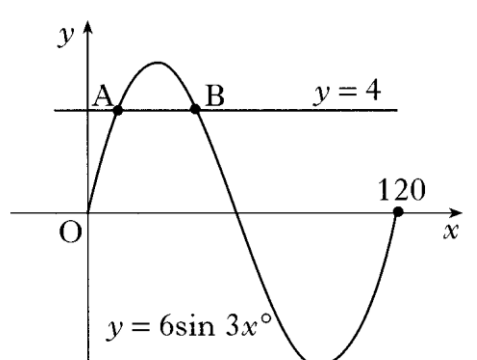
2010 P1	<p>4. The diagram shows the graph with equation of the form $y = a \cos bx$ for $0 \leq x \leq 2\pi$.</p> <div style="text-align: center;"> </div> <p>What is the equation of this graph?</p> <p>A $y = 2 \cos 3x$ B $y = 2 \cos 2x$ C $y = 3 \cos 2x$ D $y = 4 \cos 3x$</p>	2
Ans	A	
2010 P2	<p>4. Solve $2 \cos 2x - 5 \cos x - 4 = 0$ for $0 \leq x < 2\pi$.</p>	5
Ans	<ul style="list-style-type: none"> •⁴ $\cos x = -\frac{3}{4}$ and $\cos x = 2$ •⁵ 2.419, 3.864 and no solution 	
2009 P1	<p>7. If the exact value of $\cos x$ is $\frac{1}{\sqrt{5}}$, find the exact value of $\cos 2x$.</p> <p>A $-\frac{3}{5}$ B $-\frac{2}{\sqrt{5}}$ C $\frac{2}{\sqrt{5}}$ D $\frac{3}{5}$</p>	2
Ans	A	

2009 PI	<p>11. How many solutions does the equation</p> $(4 \sin x - \sqrt{5})(\sin x + 1) = 0$ <p>have in the interval $0 \leq x < 2\pi$?</p> <p>A 4 B 3 C 2 D 1</p>	2															
Ans	B																
2009 PI	<p>13. k and a are given by</p> $k \sin a^\circ = 1$ $k \cos a^\circ = \sqrt{3}$ <p>where $k > 0$ and $0 \leq a < 90$.</p> <p>What are the values of k and a?</p> <table border="1" data-bbox="320 913 644 1189"> <thead> <tr> <th></th> <th>k</th> <th>a</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>2</td> <td>60</td> </tr> <tr> <td>B</td> <td>2</td> <td>30</td> </tr> <tr> <td>C</td> <td>$\sqrt{10}$</td> <td>60</td> </tr> <tr> <td>D</td> <td>$\sqrt{10}$</td> <td>30</td> </tr> </tbody> </table>		k	a	A	2	60	B	2	30	C	$\sqrt{10}$	60	D	$\sqrt{10}$	30	
	k	a															
A	2	60															
B	2	30															
C	$\sqrt{10}$	60															
D	$\sqrt{10}$	30															
Ans	B																
2009 PI	<p>24. (a) Using the fact that $\frac{7\pi}{12} = \frac{\pi}{3} + \frac{\pi}{4}$, find the exact value of $\sin\left(\frac{7\pi}{12}\right)$.</p> <p>(b) Show that $\sin(A + B) + \sin(A - B) = 2\sin A \cos B$.</p> <p>(c) (i) Express $\frac{\pi}{12}$ in terms of $\frac{\pi}{3}$ and $\frac{\pi}{4}$.</p> <p>(ii) Hence or otherwise find the exact value of $\sin\left(\frac{7\pi}{12}\right) + \sin\left(\frac{\pi}{12}\right)$.</p>	3 2 4															
Ans	<p>(a)</p> $\frac{\sqrt{3}+1}{2\sqrt{2}} \text{ or equivalent}$ <p>(c) i) $\frac{\pi}{12} = \frac{\pi}{3} - \frac{\pi}{4}$</p> <p>ii) $\frac{\sqrt{6}}{2}$ (accept $\sqrt{\frac{3}{2}}$ or $\frac{\sqrt{3}}{\sqrt{2}}$ but not $\frac{2\sqrt{3}}{2\sqrt{2}}$)</p>																

2009 P2	<p>5. The graphs of $y = f(x)$ and $y = g(x)$ are shown in the diagram.</p> <p>$f(x) = -4 \cos(2x) + 3$ and $g(x)$ is of the form $g(x) = m \cos(nx)$.</p> <p>(a) Write down the values of m and n.</p> <p>(b) Find, correct to one decimal place, the coordinates of the points of intersection of the two graphs in the interval $0 \leq x \leq \pi$.</p> <p>(c) Calculate the shaded area.</p>		1 5 6
Ans	<p>(a) $m=3, n=2$</p> <p>(b) $(0.6, 1.3)$ and $(2.6, 1.3)$</p> <p>(c) 12.4</p>		
2008 P1	<p>6. What is the solution of the equation $2 \sin x - \sqrt{3} = 0$ where $\frac{\pi}{2} \leq x \leq \pi$?</p> <p>A $\frac{\pi}{6}$</p> <p>B $\frac{2\pi}{3}$</p> <p>C $\frac{3\pi}{4}$</p> <p>D $\frac{5\pi}{6}$</p>	2	
Ans	B		

2008 P2	<p>3. (a) (i) Diagram 1 shows part of the graph of $y = f(x)$, where $f(x) = p \cos x$.</p> <p>Write down the value of p.</p> <p>(ii) Diagram 2 shows part of the graph of $y = g(x)$, where $g(x) = q \sin x$.</p> <p>Write down the value of q.</p>	<p>Diagram 1</p>  <p>Diagram 2</p> 	2
Ans	$p = \sqrt{7}, q = -3$		
2007 P2	<p>4. The diagram shows part of the graph of a function whose equation is of the form $y = a \sin (bx^\circ) + c$.</p> <p>(a) Write down the values of a, b and c.</p> <p>(b) Determine the exact value of the x-coordinate of P, the point where the graph intersects the x-axis as shown in the diagram.</p>		3
Ans	<p>(a) $a = 2, b = 3, c = -1$</p> <p>(b) $x_P = 50^\circ$</p>		3
2004 P1	<p>3. Find all the values of x in the interval $0 \leq x \leq 2\pi$ for which $\tan^2(x) = 3$.</p>		4
Ans	<p>$x = \frac{\pi}{3}$ and $x = \frac{4\pi}{3}$</p> <p>$x = \frac{2\pi}{3}$ and $x = \frac{5\pi}{3}$</p>		

2003 P2	<p>2. The diagram shows a sketch of part of the graph of a trigonometric function whose equation is of the form $y = a \sin(bx) + c$.</p> <p>Determine the values of a, b and c.</p>		3
Ans	a = 4, b = 2, c = 1		
2002W P1	<p>4. (a) Write down the exact values of $\sin\left(\frac{\pi}{3}\right)$ and $\cos\left(\frac{\pi}{3}\right)$.</p> <p>(b) If $\tan x = 4 \sin\left(\frac{\pi}{3}\right) \cos\left(\frac{\pi}{3}\right)$, find the exact values of x for $0 \leq x \leq 2\pi$.</p>		1 2
Ans	<p>(a) $\frac{\sqrt{3}}{2}, \frac{1}{2}$</p> <p>(b) $\frac{\pi}{3}, \frac{4\pi}{3}$</p>		
2002 P1	<p>8. The diagram shows the graph of a cosine function from 0 to π.</p> <p>(a) State the equation of the graph.</p> <p>(b) The line with equation $y = -\sqrt{3}$ intersects this graph at points A and B.</p> <p>Find the coordinates of B.</p>		1 3
Ans	<p>(a) $y = 2\cos(2x)$</p> <p>(b) $B\left(\frac{7\pi}{12}, -\sqrt{3}\right)$</p>		
2002 P1	<p>9. (a) Write $\sin(x) - \cos(x)$ in the form $k\sin(x - a)$ stating the values of k and a where $k > 0$ and $0 \leq a < 2\pi$.</p> <p>(b) Sketch the graph of $y = \sin(x) - \cos(x)$ for $0 \leq x \leq 2\pi$, showing clearly the graph's maximum and minimum values and where it cuts the x-axis and the y-axis.</p>		4 3

<p>Ans</p>	<p>(a) $\sqrt{2} \sin(x - \frac{\pi}{4})$</p> <p>(b) </p>	
<p>Specimen 2 P2</p>	<p>3. The diagram shows part of the graph of $y = 6\sin 3x$ and the line with equation $y = 4$.</p> <p>Find the x-coordinates of A and B.</p> 	<p>3</p>
<p>Ans</p>	<p>$6\sin 3x = 4$ $3x = 41.8, 138.2, (401.8)$ $x = 13.9, 46.1, (133.6)$ $x_A = 13.9, x_B = 46.1$</p>	
<p>Specimen 1 P1</p>	<p>8. Sketch the graph of $y = 2\sin(x - 30)^\circ$ for $0 \leq x < 360$.</p>	<p>4</p>
<p>Ans</p>	