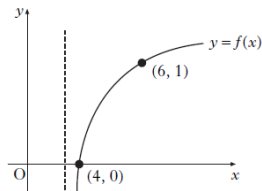
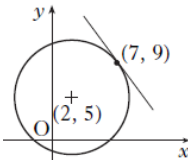


21	Show that $(x - 1)$ is a factor of $x^3 - 3x + 2$. Hence or otherwise factorise $x^3 - 3x + 2$ fully.	
22	$2x^2 + 4x + 7$ is expressed in the form $2(x + p)^2 + q$. What is the value of q .	
23	If $\log_4 12 - \log_4 x = \log_4 6$, what is the value of x ?	
24	Solve $2\cos x = \sqrt{3}$ for x , where $0 \leq x < 2\pi$.	
25	If the exact value of $\cos x$ is $\frac{1}{\sqrt{5}}$, find the exact value of $\cos 2x$.	
26	Given that $f(x) = (4 - 3x^2)^{-\frac{1}{2}}$ on a suitable domain, find $f'(x)$.	
27	Find the coordinates of the stationary points on the curve $f(x) = x^3 - 3x + 2$ and determine their nature.	
28	Find $\int (4x^{\frac{1}{2}} + x^{-3}) dx$, where $x > 0$.	
29	The graph of $y = f(x)$ passes through the point $(\frac{\pi}{9}, 1)$. If $f'(x) = \sin(3x)$ express y in terms of x .	
30	Write $\sin x - \cos x$ in the form $k\sin(x - a)$ stating the values of k and a where $k > 0$ and $0 \leq a \leq 2\pi$.	

<p>31 Functions f and g are given by $f(x) = 3x + 1$ and $g(x) = x^2 - 2$. Find $f(g(x))$ and $g(f(x))$.</p>	
<p>32 The diagram shows the graph of $y = f(x)$ where f is a logarithmic function. What are the values of a and b for $(x) = \log_a(x - b)$?</p>	
<p>33 The vectors $\mathbf{u} = \begin{pmatrix} k \\ -1 \\ 1 \end{pmatrix}$ and $\mathbf{v} = \begin{pmatrix} 0 \\ 4 \\ k \end{pmatrix}$ are perpendicular. What is the value of k?</p>	
<p>34 D, E and F have coordinates $(10, -8, -15)$, $(1, -2, -3)$ and $(-2, 0, 1)$ respectively. Show that D, E and F are collinear and find the ratio in which E divides DF.</p>	
<p>35 Prove that $\frac{\cos^3 x}{1 - \sin^2 x} = \cos x$.</p>	
<p>36 The line L passes through the point $(-2, -1)$ and is parallel to the line with equation $5x + 3y - 6 = 0$. What is the equation of L?</p>	
<p>37 Triangle PQR has vertices at $P(-3, -2)$, $Q(-1, 4)$ and $R(3, 6)$. PS is a median. What is the gradient of PS?</p>	
<p>38 The diagram shows a circle, centre $(2, 5)$ and a tangent drawn at the point $(7, 9)$. What is the equation of this tangent?</p>	
<p>39 A sequence is generated by the recurrence relation $u_{n+1} = 0.4u_n - 240$. What is the limit of this sequence as $n \rightarrow \infty$?</p>	
<p>40 Calculate the shaded area enclosed by the curve $y = x^3(3 - x)$ and the x-axis between $x = 0$ and $x = 3$.</p>	