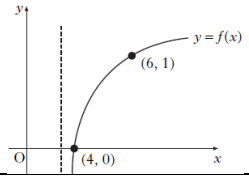
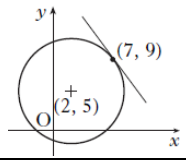
31	Functions *f* and *g* are given by $f(x) = 3x + 1$ and $g(x) = x^2 - 2$. Find $f(g(x))$ *and* $g(f(x))$.	
32	The diagram shows the graph of $y = f(x)$ where *f* is a logarithmic function. What are the values of a and b for $(x) = log_a(x - b)$? 	
33	The vectors $\boldsymbol{u} = \begin{pmatrix} k \\ -1 \\ 1 \end{pmatrix}$ and $\boldsymbol{v} = \begin{pmatrix} 0 \\ 4 \\ k \end{pmatrix}$ are perpendicular. What is the value of *k*?	
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.	
35	Prove that $\frac{cos^3x}{1-sin^2x} = cosx.$	
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?	
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?	
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? 	
39	A sequence is generated by the recurrence relation $u_{n+1} = 0.4u_n - 240$. What is the limit of this sequence as → ∞ ?	
40	Calculate the shaded area enclosed by the curve $y = x^3(3 - x)$ and the *x*-axis between $x = 0$ and $x = 3$.