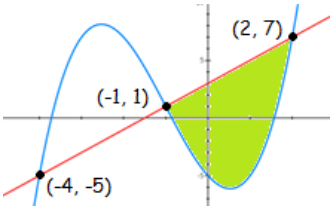
Name:	Date:
Question 1: Express $3x^2 - 30x + 1$ in the form $a(x+b)^2 + c$.	8·2 Bronze Outcome 1
Question 2: The curve $y = x^3 + 3x^2 - 4x - 5$ intersects the line $y = 2x + 3$ at points (-4, -5), (-1, 1) and (2, 7).  Calculate the shaded area.	9·4 Silver Outcome 2
Question 3: Simplify the following logarithmic expression. $2\log_3 6 + \log_3 4$	14·1 Gold Outcome 3
Question 4: If x is an acute angle with $\tan x = \frac{3}{5}$ find the exact value of $\cos 2x$.	10·1 Silver Outcome 2
Question 5: Calculate the following. $\int (5x+1)^3 \, dx$	13·2 Bronze Outcome 1
My score:	

Exam Questions

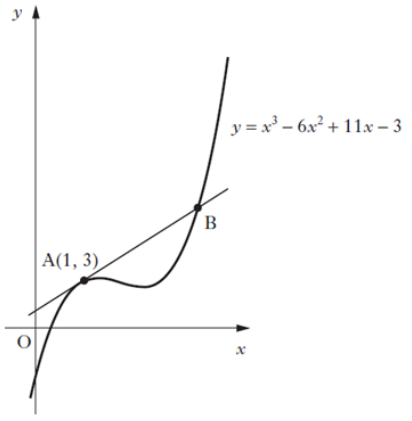
Question 1:

Find the x-coordinates of the stationary points on the curve with equation $y = \frac{1}{2}x^4 - 2x^3 + 6$. **4**

Question 2:

(*a*) Show that $(x-1)$ is a factor of $x^3 - 6x^2 + 9x - 4$ and hence factorise $x^3 - 6x^2 + 9x - 4$ fully. **4**

(*b*) The diagram shows the graph with equation $y = x^3 - 6x^2 + 11x - 3$.



(i) Find the equation of the tangent to the curve $y = x^3 - 6x^2 + 11x - 3$ at the point A(1, 3). **3**

(ii) Hence find the coordinates of B, the point of intersection of this tangent with the curve. **3**

Question 3:

Given that $y = 3\sin(x) + \cos(2x)$, find $\frac{dy}{dx}$. **3**

My score: