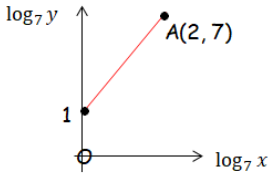
Name:	Date:
Question 1: Sketch the curve $y = 2x^3 - 9x^2$ showing the intersection with both axes and any stationary points.	6·5 Gold Outcome 3
Question 2: For the graph below, two variables, x and y, are connected by the law $y = kx^n$.  Find the values of k and n.	14·4 Silver Outcome 2
Question 3: Find the equation of the tangent at the point (8, 10) on the circle $x^2 + y^2 - 20x + 12y - 12 = 0$.	11·2 Silver Outcome 2
Question 4: Solve $30x - 5x^2 < 0$.	8·3 Bronze Outcome 1
Question 5: Solve $3\cos 2x = 5\cos x - 4$ for $0 < x \leq 2\pi$.	10·2 Gold Outcome 3
My score:	

Exam Questions

Question 1:

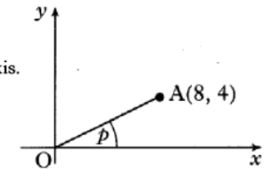
(a) Express $5\sin x° - 12\cos x°$ in the form $k\sin(x-a)°$ where $k > 0$ and $0 < a < 360$. 4

(b) Hence solve the equation $5\sin x° - 12\cos x° = 6{\cdot}5$ in the interval $0 < x < 360$. 3

Question 2:

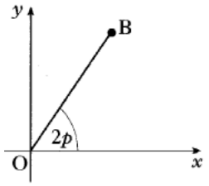
A is the point (8, 4).
The line OA is inclined at an angle p radians to the x-axis.

(a) Find the exact values of:
(i) $\sin(2p)$;
(ii) $\cos(2p)$. 5



The line OB is inclined at an angle $2p$ radians to the x-axis.

(b) Write down the exact value of the gradient of OB. 1



Question 3:

Given that $\int_4^t (3x+4)^{-\frac{1}{2}}\,dx = 2$,

find the value of t. 5

My score: