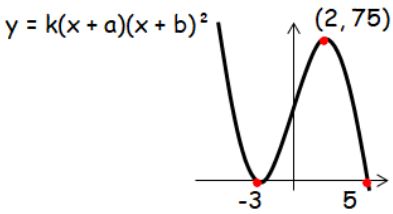
Name:	Date:
Question 1: Find the range of values of k such that the equation $kx^2 - 10x - 5 = 0$ has no real roots.	8·4 Silver Outcome 2
Question 3: Calculate the following. $\int \frac{6}{\sqrt{x}}\,dx$	9·1 Silver Outcome 2
Question 3: The equation of the cubic shown is of the form $y = k(x + a)(x + b)^2$.  What is the equation of this cubic?	8·1 Gold Outcome 3
Question 4: If A is an acute angle with $\tan A = \frac{3}{4}$ find the exact value of $\sin 2A$.	10·1 Bronze Outcome 1
Question 5: Show that the line $y = x - 2$ does not intersect the parabola with equation $y = x^2 - 3x + 8$.	8·5 Gold Outcome 3
My score:	

Exam Questions

Question 1:

Evaluate $\log_5 2 + \log_5 50 - \log_5 4$. **3**

Question 2:

(a) Find the x-coordinates of the stationary points on the graph with equation $y = f(x)$, where $f(x) = x^3 + 3x^2 - 24x$. 4

(b) Hence determine the range of values of x for which the function f is strictly increasing. 2

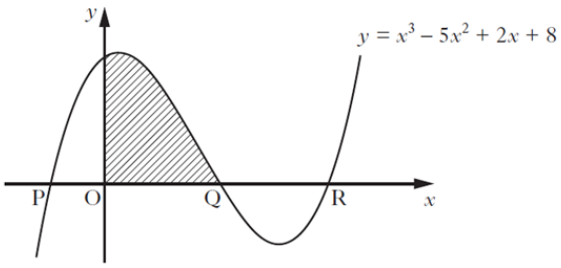
Question 3:

(*a*) (i) Show that $(x - 4)$ is a factor of $x^3 - 5x^2 + 2x + 8$.

(ii) Factorise $x^3 - 5x^2 + 2x + 8$ fully.

(iii) Solve $x^3 - 5x^2 + 2x + 8 = 0$. **6**

(*b*) The diagram shows the curve with equation $y = x^3 - 5x^2 + 2x + 8$.



The curve crosses the x-axis at P, Q and R.

Determine the shaded area. **6**

My score: