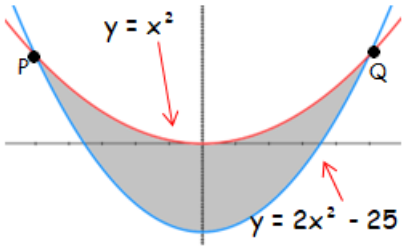
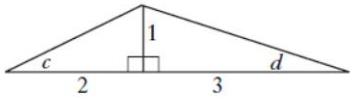
Name:	Date:
Question 1: Differentiate $\frac{1}{3}\cos 12x$ with respect to x.	13·1 Silver Outcome 2
Question 3: Express $2x^2 + 8x - 5$ in the form $a(x+b)^2 + c$.	8·2 Bronze Outcome 1
Question 3: Express $\sqrt{3}sinx° + cosx°$ in the form $kcos(x-a)°$ where $k > 0$ and $0 < a < 360$.	15·1 Bronze Outcome 1
Question 4: Show that the line y = 5 – 2x is a tangent to the curve y = x² - 8x + 14 and find the coordinates of the point of contact.	8·5 Silver Outcome 2
Question 5: The curves y = x² and y = 2x² - 25 intersect at points P and Q.  Calculate the area enclosed by the two curves. 	9·4 Gold Outcome 3
My score:	

Exam Questions

Question 1:

The diagram shows two right-angled triangles with angles c and d marked as shown.



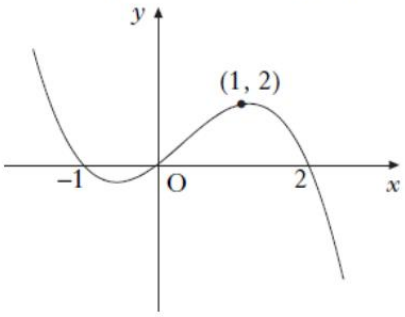
(a) Find the exact value of $\sin(c + d)$. 4

(b) (i) Find the exact value of $\sin 2c$.

(ii) Show that $\cos 2d$ has the same exact value. 4

Question 2:

The diagram shows the graph of a cubic.



What is the equation of this cubic? 3

Question 3:

Before a forest fire was brought under control, the spread of the fire was described by a law of the form $A = A_0e^{kt}$ where A_0 is the area covered by the fire when it was first detected and A is the area covered by the fire t hours later.

If it takes one and half hours for the area of the forest fire to double, find the value of the constant k. 3

My score: