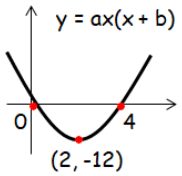
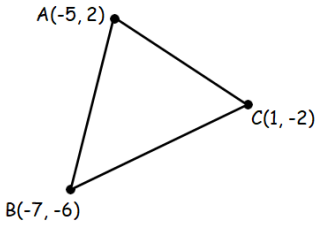
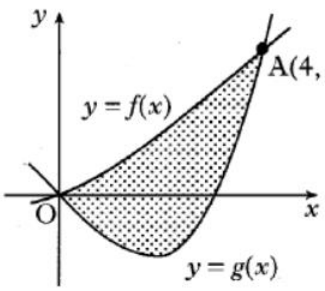
Name:	Date:
Question 1: Find the range of values of k such that the equation $kx^2 + 5x - 2 = 0$ has real roots.	8·4 Silver Outcome 2
Question 2: Find the equation of the tangent to the curve $y = x^3 + 7x^2$ at the point where x = -4.	6·3 Silver Outcome 2
Question 3: Calculate the following. $\int 8x^3 + 2x^2 - 15x + 7 \ dx$	9·1 Bronze Outcome 1
Question 4: The equation of the parabola shown is of the form y = kx(x + a).  What is the equation of this quadratic?	8·1 Bronze Outcome 1
Question 5: Triangle ABC has vertices A(-5, 2), B(-7, -6) and C(1, -2) as shown in the diagram below;  (a) Find the equation of the median from C. (b) Find the equation of the perpendicular bisector of BC. (c) Find the coordinates of the point of intersection of the median from C and the perpendicular bisector of BC.	1·8 Bronze Outcome 1 1·8 Gold Outcome 3 1·9 Silver Outcome 2
My score:	

Exam Questions

Question 1:

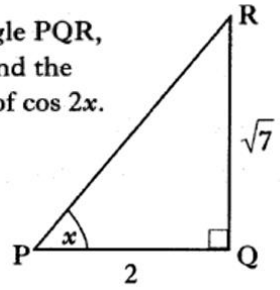
The incomplete graphs of $f(x) = x^2 + 2x$ and $g(x) = x^3 - x^2 - 6x$ are shown in the diagram. The graphs intersect at A(4, 24) and the origin.



Find the shaded area enclosed between the curves. **5**

Question 2:

Using triangle PQR, as shown, find the exact value of cos 2x.



(3)

Question 3:

$f(x) = x^3 - x^2 - 5x - 3$.

(a) (i) Show that $(x + 1)$ is a factor of $f(x)$.

(ii) Hence or otherwise factorise $f(x)$ fully. **5**

(b) One of the turning points of the graph of $y = f(x)$ lies on the x-axis.

Write down the coordinates of this turning point. **1**

My score: