| Name: | Date: |
|---|---|
| Question 1:<br>Find the maximum and minimum values for $f(x) = x^3 - 6x^2 - 15x + 4$ in the closed interval $0 \leq x \leq 12$.<br>  | 6·6 Outcome 1 |
| Question 2:<br>Given that $x = 3$ and $x = -6$ are roots of $f(x) = x^3 + ax^2 - 21x + b$, find the values of a and b and hence factorise fully. | 7·2 Gold Outcome 3 |
| Question 3:<br>A curve for which $f'(x) = 3x^2 + 5x + 6$ passes through the point (0, 0).<br>Find f(x). | 9·3 Outcome 1 |
| Question 4:<br>Solve $2\cos 2x° = 3 - 5\sin x°$ for $0 \leq x \leq 360°$.<br>  | 10·2 Gold Outcome 3 |
| Question 5:<br>A point (x, y) lies on the curve with equation $y = x^2$. Calculate the coordinates for which the gradient of the tangent is 8. | 6·3 Gold Outcome 3 |
| My score: | |

# Exam Questions

Question 1:

Show that the line with equation $y = 2x + 1$ does not intersect the parabola with equation $y = x^2 + 3x + 4$.

**5**

Question 2:

The point P(2, 3) lies on the circle $(x + 1)^2 + (y - 1)^2 = 13$. Find the equation of the tangent at P.

**4**

Question 3:

Solve the equation

$$\log_4(5 - x) - \log_4(3 - x) = 2, \; x < 3.$$

**4**

My score: