Past Years Examination Questions

1 (i) Draw on the same diagram, for $0 \le x \le 6$, the graphs of $y = x + 2$ and $y = |3x - 7|$.

(ii) Solve the equation $|3x - 7| = x + 2$.

N2004/II/2 (AO Maths)

2 The function f is defined by f: $x \mapsto |x^2 - 8x + 7|$ for the domain $3 \le x \le 8$.

(i) By first considering the stationary value of the function $x \mapsto |x^2 - 8x + 7|$, show that the graph of $y = f(x)$ has a stationary point at $x = 4$ and determine the nature of this stationary point. [4]

(ii) Sketch the graph of $y = f(x)$. [2]

(iii) Find the range of f. [2]

N2004/II/10 (part)

3 Solve the equation $1 + |2x - 3| = 3x$ [4]

N2005/I/2 (Maths C)

4 A function f is defined by f : $x \mapsto |2x - 3| - 4$, for $-2 \le x \le 3$.

(i) Sketch the graph of $y = f(x)$. [2]

(ii) State the range of f. [2]

(iii) Solve the equation $f(x) = -2$. [3]

N2005/I/11 (part)

5 Given that $|x - 2| < 6$, find the range of values of $2x + 9$.

N2005/II/3*(a)* (AO Maths)

6 The function f is defined for the domain $-3 \le x \le 3$ by $f(x) = 9(x - \frac{1}{3})^2 - 11$.

(i) Find the range of f. [3]

(ii) State the coordinates and nature of the turning point of

(a) the curve $y = f(x)$,

(b) the curve $y = |f(x)|$. [4] N2006/I/7

7 *(a)* Solve the inequality $|2x - 3| \le 5$.

(b) The graph of $y = |2x + c|$ passes through the point (1, 5).

(i) Find the possible values of the constant c. [3]

(ii) Find, for each value of c, the x-coordinate of the point where the graph meets the x-axis. [2]

N2007/I/10

8 (i) Sketch the graph of $y = |5 - 2x|$ for $0 \le x \le 6$. [2]

(ii) Solve the equation $|5 - 2x| = 2$. [3]

N2008/II/3 (Syll. 4018)

9 (i) Find the coordinates of all the points at which the graph of $y = |3x - 5| - 2$ meets the coordinate axes. [4]

(ii) Sketch the graph of $y = |3x - 5| - 2$. [2]

(iii) Solve the equation $x = |3x - 5| - 2$. [3]

N2009/II/7