PAST EXAMINATION QUESTIONS

Part 1

1. On three separate diagrams sketch the graphs (i) $y = |x|$, (ii) $y = |x-2|$, (iii) $y = |x| + 2$. Label your graphs clearly. [$|x|$ means the magnitude of x, e.g. $|-2| = 2$, $|3| = 3$, etc.] (N75/P1/10)

2. Draw the graph of $y = \begin{cases} -3x \text{ for } x < 0 \\ +3x \text{ for } x \geq 0 \end{cases}$ for the domain $-4 \leq x \leq 4$,
   (i) State the range corresponding to a domain of $-1 \leq x \leq 3$.
   (ii) State the domain or domains corresponding to a range of $6 \leq y \leq 12$. (J77/P1/9)

3. For the function $f(x) = |2-x|$, state the range that corresponds to the domain $0 \leq x \leq 5$. (J80/P1/9i)

4. Find the range of the function $f: x \mapsto |x - 1|$ corresponding to a domain $-3 \leq x \leq 3$. (J81/P2/9a)

5. Sketch the graph of $y = |8 - 3x|$ for $1 \leq x \leq 5$. State the range of values of y. (N81/P1/10ii)

6. Sketch $y = |x|$ for the domain $-5 \leq x \leq 5$. (J82/P1/9i)

7. Sketch the graph of $|y| = x$ for the domain $0 \leq x \leq 2$. (N83/P1/10iii)

8. Find the range of the function $f: x \mapsto |2x - 3|$ for the domain $-2 \leq x \leq 5$. (J84/P2/10i)

9. For the function $f(x) = |7 - 2x|$ state the range that corresponds to the domain $0 \leq x \leq 8$. (N85/P2/10i)

10. Sketch the graph of $y = |4 - 3x|$ and find the set of values of x for which $y < 2$. (Sp1/15b)

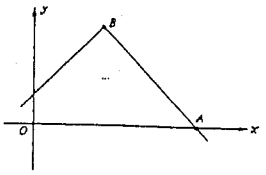
11. Sketch the graph of $y = |2x - 5|$ for $0 \leq x \leq 6$. Find the range of values of x for which $y \leq 4$. (J87/P1/7b)

12. Sketch the graph of the function $f: x \mapsto |2x - 3|$ for the domain $0 \leq x \leq 4$. State the range corresponding to the given domain. (J88/P1/17bi)

13. Sketch the graph of $g: x \mapsto |2x + 3|$ for the domain $-2 \leq x \leq 2$. State the range of the function for its given domain. (J90/P1/9ii)

14. Sketch the graph of $y = -|2x - 5|$ for $-1 \leq x \leq 4$. (N90/P1/10b)

15. The diagram shows part of the graph of $y = 3 - |x - 2|$. Find the coordinates of the points A and B. (J93/P1/11b)



2. (i) $0 \leq y \leq 9$
   (ii) $-4 \leq x \leq -2, 2 \leq x \leq 4$
3. $0 \leq |2 - x| \leq 3$
4. $0 \leq f(x) \leq 4$
5. $0 \leq y \leq 7$
8. $0 \leq f(x) \leq 7$
9. $0 \leq f(x) \leq 9$
10. $\frac{2}{3} < x < 2$
11. $\frac{1}{2} \leq x \leq 4\frac{1}{2}$
12. $0 \leq f(x) \leq 5$
13. $0 \leq g(x) \leq 7$
15. (5, 0), (2, 3)