

### C3 Modulus (1)

- ① 4. (a) Sketch the graphs of  $y = x^2 - 4$  and  $y = |x^2 - 4|$ , indicating the points where the graphs meet the  $x$ -axis and the  $y$ -axis. [4]

- (b) Solve the inequality

$$|5x - 3| > 4. \quad [3]$$

- ② 5. (a) Sketch the graph of  $y = |x|$  for values of  $x$  from  $x = -2$  to  $x = 2$ . [2]

- (b) Solve the equation  $|2x| + 3 = 4$ . [1]

- (c) Solve the inequality  $|3x + 4| > 5$ . [3]

- ③ 6. Solve the following.

(a)  $3|x| + 4 = 6 - 2|x|$  [2]

(b)  $|7x - 5| \geq 3$  [3]

- ④ 6. (a) (i) Sketch the graph of  $y = \ln x$ . [4]

- (ii) On a separate diagram, sketch the graph of  $y = |\ln x|$ . [4]

- (b) Solve  $|3x - 2| < 4$ . [4]

- ⑤ 6. (a) Solve the inequality  $|3x - 8| \leq 5$ . [3]

- (b) Given that  $f(x) = |x|$ , sketch the graph of  $y = f(x)$ . On the same diagram, sketch the graph of  $y = f(x + 2) + 1$ , indicating its position. [4]