

Modulus functions

Q1

(i) Sketch the graph of $y = |x - 4|$

[2]

(ii) Solve the equation $|x - 4| = 7$

[3]

Q2

Fig. 3 below shows the graphs of $y = |2x - 1|$ and $y = 3$

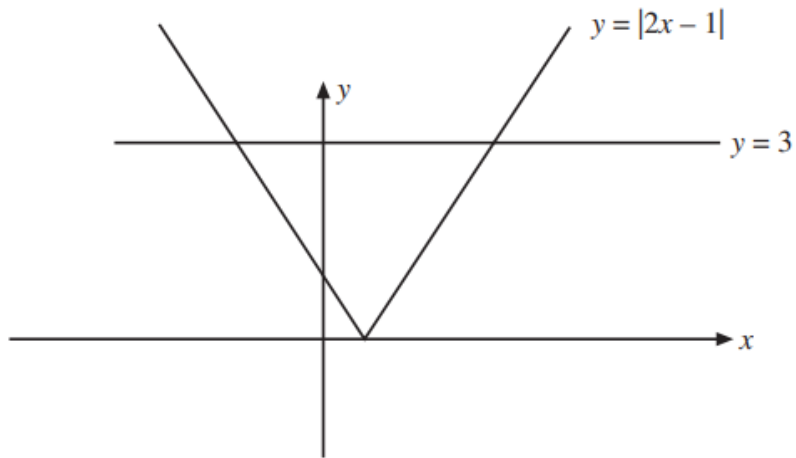


Fig. 3

Find the coordinates of their points of intersection.

[6]

Q3

(i) Sketch the graph of

$$y = |2x - 5| \quad [2]$$

(ii) Solve

$$|2x - 5| > 10 \quad [4]$$

Q4
Solve

$$|5x + 3| < 2$$

[4]

Q5

Sketched below in **Fig. 2** is the graph of $y = e^x$

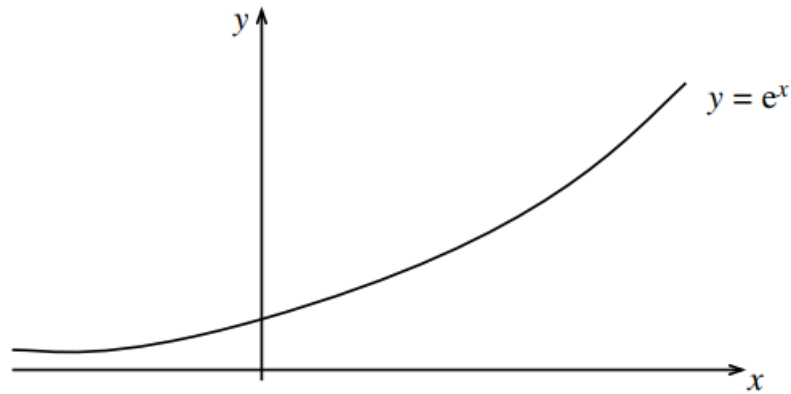


Fig. 2

- (i) Sketch the graph of $y = e^x - 1$, marking on the horizontal asymptote. [2]
- (ii) Sketch the graph of $y = |e^x - 1|$, marking on the horizontal asymptote. [3]
- (iii) Find the exact values of x for which

$$|e^x - 1| = \frac{1}{2} \quad [5]$$

Q6

Find the exact values of x for which

$$|\ln x| = 3$$

[5]