MEI Core 3 Modulus Function Questions Jan 05 - May 09

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

2 Solve the equation $|3x - 2| = x$. [3]

3 Fig.1 shows the graphs of $y = |x|$ and $y = |x - 2| + 1$. The point P is the minimum point of $y = |x - 2| + 1$, and Q is the point of intersection of the two graphs.

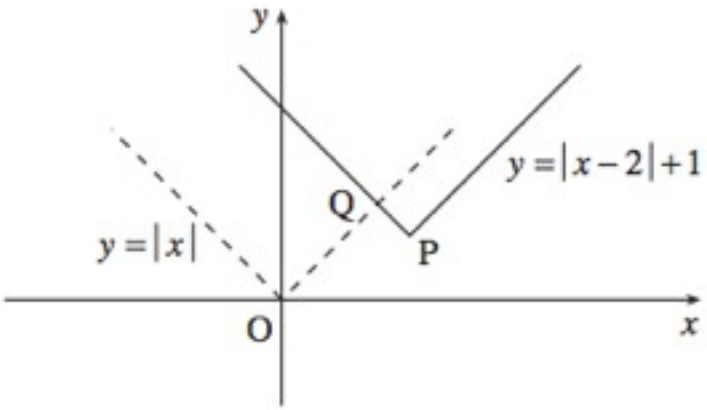

Fig. 1

(i) Write down the coordinates of P. [1]

(ii) Verify that the y-coordinate of Q is $1\frac{1}{2}$. [4]

4 Solve the inequality $|2x - 1| \leqslant 3$. [4]

5 Solve the inequality $|x - 1| < 3$. **[3]**

6 Fig. 4 shows a sketch of the graph of $y = 2|x - 1|$. It meets the x- and y-axes at $(a, 0)$ and $(0, b)$ respectively.

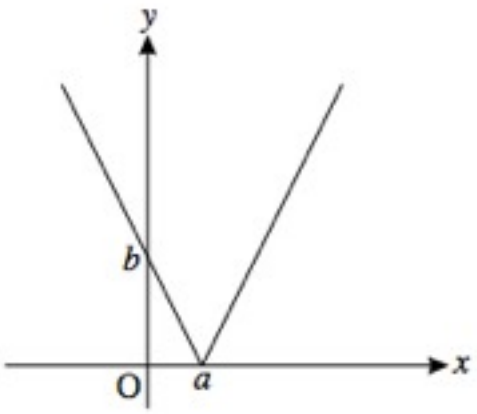

Fig. 4

Find the values of a and b. **[3]**