Section 2: Inequalities

Exercise level 1

1. Solve the following linear inequalities.

(i) $2x+3<10$ (ii) $5x+3\geq 2x-9$

(iii) $3x-1>7-x$ (iv) $4x+1\leq 6x-7$

(v) $5x+2>-7$ (vi) $3x-11\leq 5+4x$

(vii) $3(2-3x)\geq 5x+1$ (viii) $\frac{1}{3}(7+6x)<2-x$

2. (i) Write $x^2-11x+24$ in factorised form.

(ii) Sketch the graph of $y=x^2-11x+24$, labelling the values of x where the graph crosses the x-axis.

(iii) Use your graph to write down the solution of

$$x^2-11x+24\geq 0$$

3. Solve the following quadratic inequalities.

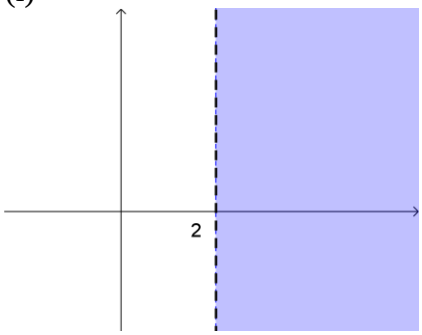
(i) $x^2-4x-12\leq 0$ (ii) $x^2-7x+6>0$

(iii) $x^2+2x-15\geq 0$ (iv) $2x^2-5x-3\leq 0$

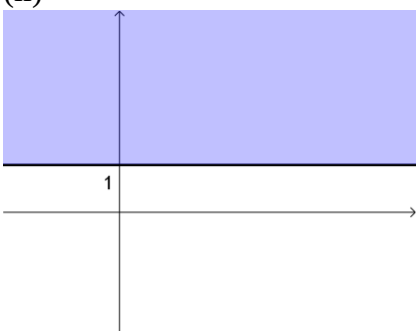
(v) $3x^2+5x+2<0$ (vi) $4x^2-4x-3>0$

4. Write down an inequality to describe the shaded area in each of these diagrams.

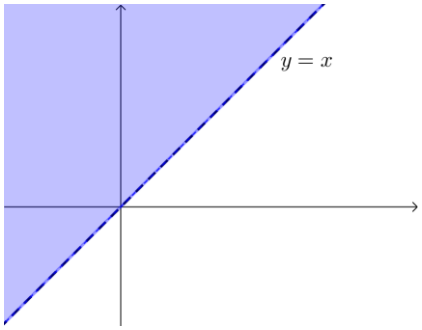
(i)



(ii)



(iii)



(iv)