

Section 4: Linear and quadratic inequalities**Exercise**

1. Solve the following linear inequalities.
 - (i) $2x + 3 < 10$
 - (ii) $5x + 3 \geq 2x - 9$
 - (iii) $4x + 1 \leq 6x - 7$
 - (iv) $5(x - 3) \leq 2(2x + 3)$
 - (v) $4(2x + 5) \geq 3(3x - 1)$
 - (vi) $\frac{2x + 1}{3} > \frac{x - 4}{2}$
2.
 - (i) What is the smallest integer value that satisfies the inequality $3x - 1 > 7 - x$?
 - (ii) What is the largest integer value that satisfies the inequality $2(1 - x) > 3x + 4$?
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) $3x^2 + 5x + 2 < 0$
 - (v) $4x^2 - 4x - 3 > 0$
 - (vi) $1 - x - 2x^2 \geq 0$
 - (vii) $x^2 \geq 3x + 10$
 - (viii) $x(x + 3) > x + 8$
4. Find the set of integer values that satisfy the following inequalities:
 - (i) $2x^2 - 5x - 3 \leq 0$
 - (ii) $x^2 + 2x - 1 < 0$
5. Solve the inequality $(x + 3)^2 > (x - 1)^2$.