

**2.6 Solve Factorable Polynomial Inequalities Algebraically****BLM 2-8**

- Solve each inequality. Show each solution on a number line.
  - $3x - 2 > 7$
  - $3 - x \geq 5$
  - $5x - 11 > 2x + 1$
  - $4(2 - 3x) \leq 2x - 6$
- Solve by considering all cases. Show each solution on a number line.
  - $(x + 2)(x - 3) \geq 0$
  - $(2x + 1)(x - 2) < 0$
- Solve using intervals. Show each solution on a number line.
  - $(x + 4)(3x - 5) > 0$
  - $(3x + 2)(x - 1) \leq 0$
- Solve.
  - $(x + 2)(x - 4)(x - 6) \geq 0$
  - $(3x + 5)(2x - 1)(x - 3) \leq 0$
  - $(1 - x)(-2x + 3)(x - 2) > 0$
  - $(2 - 3x)(x + 1)(3x - 2) < 0$
- Solve by considering all cases. Show each solution on a number line.
  - $x^2 + 3x - 10 < 0$
  - $x^2 + 10x + 21 \geq 0$
  - $2x^3 + 3x^2 - 3x - 2 \leq 0$
  - $3x^3 - x^2 - 12x + 4 > 0$
- Solve using intervals.
  - $x^3 - 2x^2 - 5x + 6 \geq 0$
  - $-x^3 + 5x^2 - 2x - 8 > 0$
  - $3x^3 - 5x^2 + 2x < 0$
  - $x^4 - 13x^2 - 12x \leq 0$
- Solve.
  - $x^2 - 2x - 24 < 0$
  - $x^3 + 6x^2 + 11x + 6 \geq 0$
  - $-2x^3 + 7x^2 - 2x - 3 > 0$
  - $-x^3 + 5x^2 - 2x - 8 \leq 0$
- A certain type of candle is packaged in boxes that measure 36 cm by 15 cm by 8 cm. The candle company that produced the above packaging has now designed shorter candles. A smaller box will be created by decreasing each dimension of the larger box by the same length. The volume of the smaller box will be at the most  $930 \text{ cm}^3$ . What are the maximum dimensions of the smaller box?
- Solve using intervals.
$$3x^4 + 10x^3 + 12 \leq 2x^5 + 15x^2 + 8x$$