

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

1. Solve each inequality. Show each solution on a number line.
 - a) $3x - 2 > 7$
 - b) $3 - x \geq 5$
 - c) $5x - 11 > 2x + 1$
 - d) $4(2 - 3x) \leq 2x - 6$
2. Solve by considering all cases. Show each solution on a number line.
 - a) $(x + 2)(x - 3) \geq 0$
 - b) $(2x + 1)(x - 2) < 0$
3. Solve using intervals. Show each solution on a number line.
 - a) $(x + 4)(3x - 5) > 0$
 - b) $(3x + 2)(x - 1) \leq 0$
4. Solve.
 - a) $(x + 2)(x - 4)(x - 6) \geq 0$
 - b) $(3x + 5)(2x - 1)(x - 3) \leq 0$
 - c) $(1 - x)(-2x + 3)(x - 2) > 0$
 - d) $(2 - 3x)(x + 1)(3x - 2) < 0$
5. Solve by considering all cases. Show each solution on a number line.
 - a) $x^2 + 3x - 10 < 0$
 - b) $x^2 + 10x + 21 \geq 0$
 - c) $2x^3 + 3x^2 - 3x - 2 \leq 0$
 - d) $3x^3 - x^2 - 12x + 4 > 0$
6. Solve using intervals.
 - a) $x^3 - 2x^2 - 5x + 6 \geq 0$
 - b) $-x^3 + 5x^2 - 2x - 8 > 0$
 - c) $3x^3 - 5x^2 + 2x < 0$
 - d) $x^4 - 13x^2 - 12x \leq 0$
7. Solve.
 - a) $x^2 - 2x - 24 < 0$
 - b) $x^3 + 6x^2 + 11x + 6 \geq 0$
 - c) $-2x^3 + 7x^2 - 2x - 3 > 0$
 - d) $-x^3 + 5x^2 - 2x - 8 \leq 0$
8. 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 cm^3 . What are the maximum dimensions of the smaller box?
9. Solve using intervals.
$$3x^4 + 10x^3 + 12 \leq 2x^5 + 15x^2 + 8x$$