

Name: _____

Solving Polynomial and Rational Inequalities

Exercise 1: Solve the inequality

1) $9x^2 - 12x < 0$

2) $3x^2 - x \geq 4$

3) $16x^3 > 25x$

4) $800x < 100x^2$

5) $x^2 + 3x + 2 \geq 0$

6) $2x^2 - 5x < 3$

7) $4x^2 + 6x > -2$

8) $x^2 - 4x + 3 > 0$

9) $x^2 - 8x + 12 < 0$

10) $x^2 + 9x > 20$

Exercise 2: Solve each of the following inequalities graphically. Write your answer in your instructor's preferred notation.

1) $x^2 - 2x - 8 \leq 0$

2) $x^2 + 7x + 12 < 0$

3) $x^2 + 2x - 1 < -1$

4) $-x^2 + 4x + 1 \geq 4$

5) $x^2 - 2x - 8 > 0$

6) $x^2 + 7x + 12 > 0$

7) $(x+2)(x-1)(x-3) > 0$

8) $x^3 - 1 \leq 0$

9) $x^2 + 2x - 3 < 0$

10) $x^2 - 3x + 2 < 0$

11) $x^2 - 3x + 2 > 0$

12) $x^2 + 2x - 3 > 0$

13) $(x+3)(x-1)(x+1) > 0$

14) $(x-1)(x+2)(x-4) > 0$

15) $x^2 - x + 4 > 0$

16) $x^2 - 2x + 1 > 0$

17) $x^2 - x + 4 < 0$

18) $x^2 - 2x + 1 < 0$

19) $(x-1)^2(x+2) < 0$

20) $(x+2)^2(x-3) < 0$