Candle Center - Infinite Precalculus

Name_____

Polynomial Inequalities

Date_____ Period_____

Solve each inequality.

1) $(x4 -)(x0 <)3 +$

2) $(x - 4)(x + 1) \geq 0$

3) $(x3()1 - x0 \geq)4 -$

4) $(x + 8)(x + 2)(x - 3) \geq 0$

5) $x5 + {}^2x0 \leq 4 +$

6) $x^2 - 14x + 49 \geq 0$

7) $x4 - {}^2x0 > 23 -$

8) $x^2 + 16x + 24 > 6x$

9) $(x5 +)(x2 -)(x1 -)(x0 <)1 +$

10) $(x + 8)^2(x + 5)(x + 7)^2 \geq 0$

Critical thinking question:

11) Write a polynomial inequality with the solution: $\{-1\} \cup \{2\} \cup [3, \infty)$

Polynomial Inequalities

Solve each inequality.

1) $(x-4)(x+3) < 0$

$(-3, 4)$

2) $(x-4)(x+1) \geq 0$

$(-\infty, -1] \cup [4, \infty)$

3) $(x-1)(3x-4) \geq 0$

$(-\infty, 1] \cup \left[\dfrac{4}{3}, \infty\right)$

4) $(x+8)(x+2)(x-3) \geq 0$

$[-8, -2] \cup [3, \infty)$

5) $x^2 + 5x + 4 \leq 0$

$[-4, -1]$

6) $x^2 - 14x + 49 \geq 0$

$(-\infty, \infty)$

7) $x^2 - 4x - 32 > 0$

$(-\infty, -4) \cup (8, \infty)$

8) $x^2 + 16x + 24 > 6x$

$(-\infty, -6) \cup (-4, \infty)$

9) $(x+5)(x-2)(x-1)(x+1) < 0$

$(-5, -1) \cup (1, 2)$

10) $(x+8)^2(x+5)(x+7)^2 \geq 0$

$\{-8\} \cup \{-7\} \cup [-5, \infty)$

Critical thinking question:

11) Write a polynomial inequality with the solution: $\{-1\} \cup \{2\} \cup [3, \infty)$

Example: $(x+1)^2 \cdot (x-2)^2(x-3) \geq 0$