Kuta Software - Infinite Precalculus Name_____

Polynomial Inequalities

Date_____ Period____

Solve each inequality.

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

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

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

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

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

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

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

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

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

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

Critical thinking question:

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

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Solve each inequality.

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

$(-3, 4)$

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

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

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

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

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