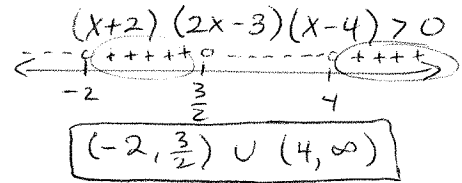


KEY

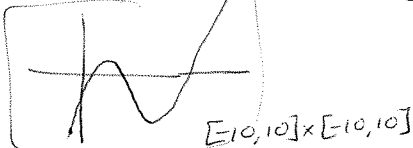
Precalculus Honors

2.8 Notes – Solving Inequalities in One Variable

1. Complete the factorization if necessary; Solve using a sign chart: $(x+2)(2x^2-11x+12) > 0$



2. Solve $x^3 - 6x^2 + 8x - 2 \leq 0$ graphically



$(-\infty, 0.325] \cup [1.461, 4.214]$

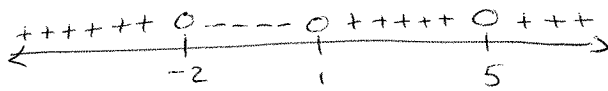
3. Solve the following inequalities for the function $f(x) = (x-1)(x+2)(x-5)^2$

a) $f(x) > 0$

b) $f(x) \geq 0$

c) $f(x) < 0$

d) $f(x) \leq 0$



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

$(-\infty, -2] \cup [1, \infty)$

$(-2, 1)$

$[-2, 1] \cup \{5\}$

4. Solve $(x^2+7)(2x^2+1) > 0$ algebraically

note: no real zeros for either quadratic – so no sign changes! test one point
 + the sign will always stay the same!



$(-\infty, \infty)$ or \mathbb{R}

5. Solve $(x^2+7)(2x^2+1) < 0$ algebraically

\emptyset or "NO SOLUTION"

6. Solve $(x^2-3x+3)(2x+5)^2 > 0$ algebraically

$(-\infty, -5/2) \cup (-5/2, \infty)$

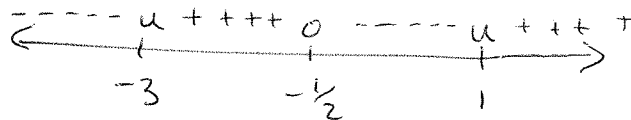
or

$x \neq -5/2$

7. Solve $(x^2 - 3x + 3)(2x + 5)^2 \leq 0$ algebraically

$$\left\{ -\frac{5}{2} \right\}$$

8. Solve $\frac{2x+1}{(x+3)(x-1)} \geq 0$ algebraically

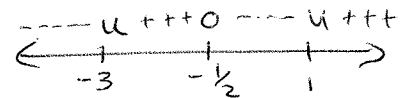


$$\left(-3, -\frac{1}{2} \right] \cup [1, \infty)$$

9. Solve $\frac{5}{x+3} + \frac{3}{x-1} < 0$ algebraically

$$\frac{5(x-1)}{(x+3)(x-1)} + \frac{3(x+3)}{(x+3)(x-1)} < 0$$

$$\frac{5x-5+3x+9}{(x+3)(x-1)} = \frac{8x+4}{(x+3)(x-1)} = \frac{4(2x+1)}{(x+3)(x-1)} < 0$$



10. Solve $(x-3)\sqrt{x+1} \geq 0$ algebraically

$$\left(-\infty, -3 \right) \cup \left(-\frac{1}{2}, 1 \right)$$



$$\{ -1 \} \cup [3, \infty)$$

11. Solve $\frac{x-2}{|x+3|} \leq 0$ algebraically



$$\left(-\infty, -3 \right) \cup \left(-3, 2 \right]$$