Key

Math 4

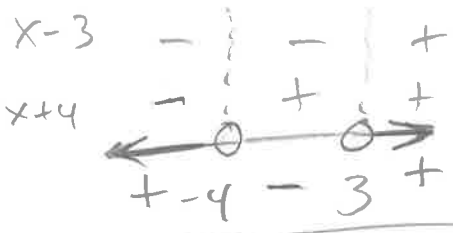
1-5 NLA Practice

Name_____

Date_____

Solve the following inequalities by using number line analysis.

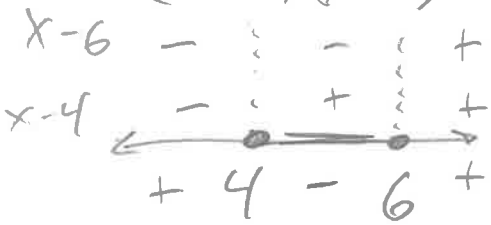
1. $(x-3)(x+4) \geq 0$.



$x \leq -4$ or $x \geq 3$

2. $x^2 - 10x + 24 \leq 0$.

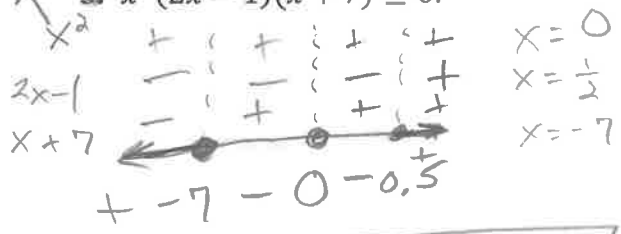
$(x-6)(x-4) \leq 0$



$4 \leq x \leq 6$

Don't need to include x^2

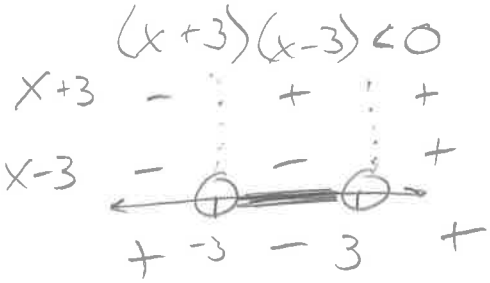
3. $x^2(2x-1)(x+7) \geq 0$.



$x = 0,\ x \leq -7,\ x \geq 0.5$

4. $x^2 - 9 < 0$.

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

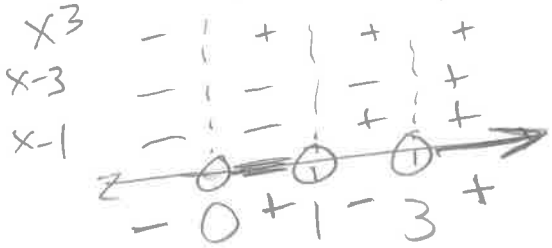


$-3 < x < 3$

5. $x^5 - 4x^4 + 3x^3 > 0$.

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

$x^3(x-3)(x-1) > 0$

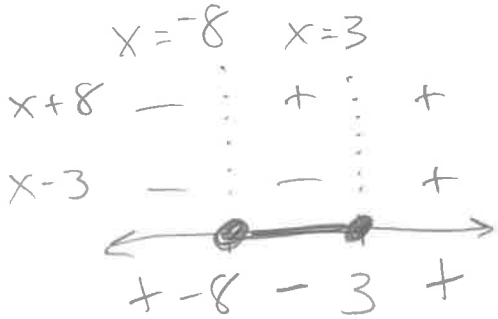


$0 < x < 1$ or $x > 3$

6. $3x^2 + x - 15 \leq 2x^2 - 4x + 9$.

$x^2 + 5x - 24 \leq 0$

$(x+8)(x-3) \leq 0$



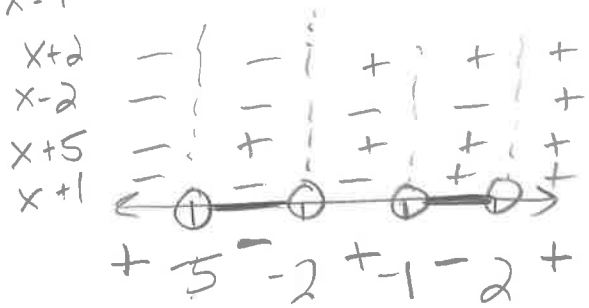
$-8 \leq x \leq 3$

OVER →

7. $\frac{x^2-4}{x^2+6x+5} < 0$

$x=-2$
$x=2$
$x=5$
$x=-1$

$$\frac{(x+2)(x-2)}{(x+5)(x+1)} < 0$$

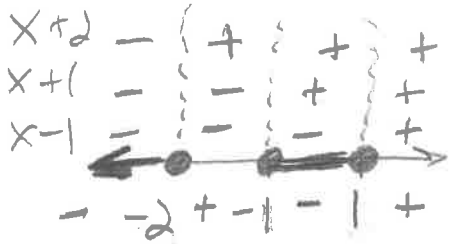


$-5 < x < -2$ or $-1 < x < 2$

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

$$(x^3+2x^2)-(x+2) \leq 0$$
$$x^2(x+2)-(x+2) \leq 0$$
$$(x+2)(x^2-1) \leq 0$$
$$(x+2)(x+1)(x-1) \leq 0$$

$x=-2$ $x=-1$ $x=1$



$x \leq -2$ or $-1 \leq x \leq 1$