

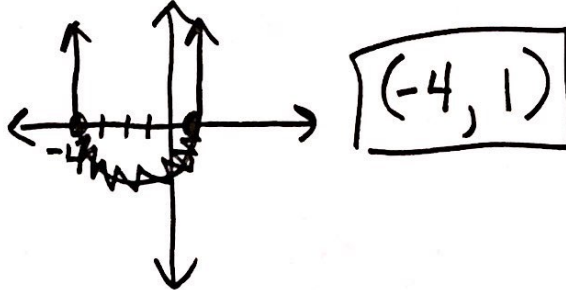
Steps to solve:

1. Set the inequality equal to zero.
2. Solve the inequality by factoring (if it is a quadratic and you can't factor, use the quadratic formula)
3. Sketch the graph.
- See where your graph is either above or below the x-axis, depending on the inequality.
- Write your answer in interval notation.

Solve each polynomial inequality. Find the x-intercepts algebraically. Sketch the graph. Answer in interval notation.

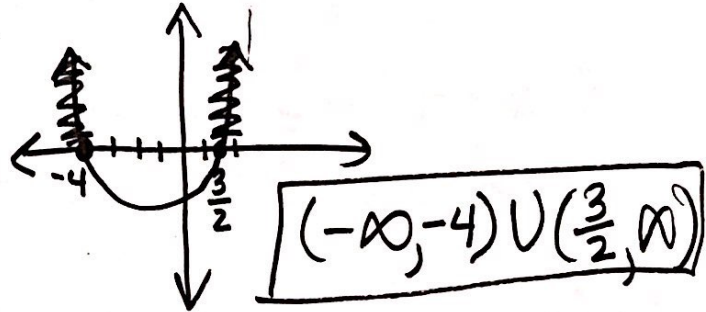
1. $x^2 + 3x - 4 < 0$

$(x+4)(x-1) < 0$
 $x = -4, 1$



2. $2x^2 + 5x > 12$

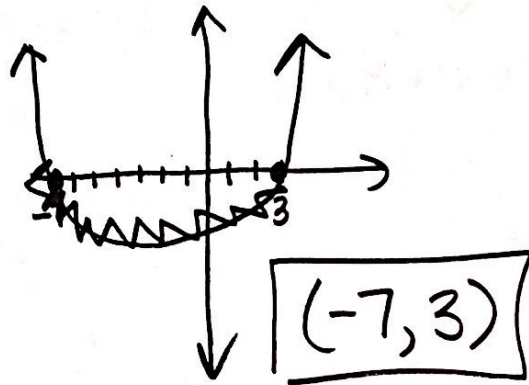
$2x^2 + 5x - 12 > 0$
 $(2x^2 + 8x) - (3x - 12) > 0$
 $2x(x+4) - 3(x+4) > 0$
 $(x+4)(2x-3) > 0$
 $x = -4, \frac{3}{2}$



3. $(x+2)^2 < 25$

$x+2 < \pm 5$

$x+2 = 5 \quad x+2 = -5$
 $x = 3 \quad x = -7$

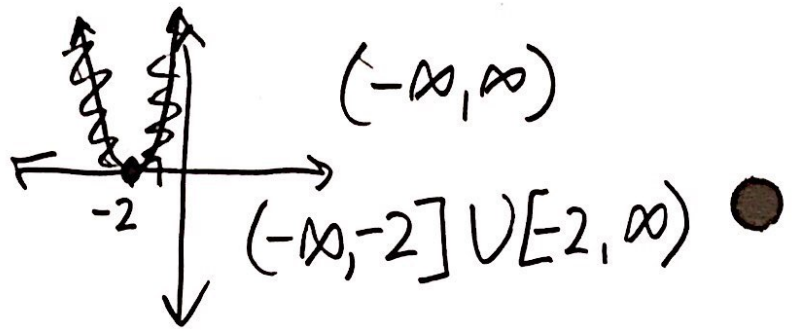


4. $(x+6)^2 \leq 8$

5. $x^2 + 4x + 4 \geq 0$

$(x+2)(x+2) \geq 0$

$x = -2, -2$



$\frac{4}{2} = 2$

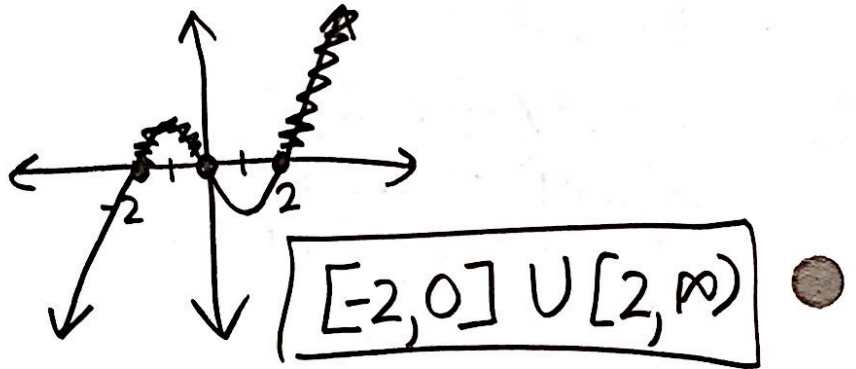
6. $x^2 - 6x + 9 < 16$

7. $x^3 - 4x \geq 0$

$x(x^2 - 4) \geq 0$

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

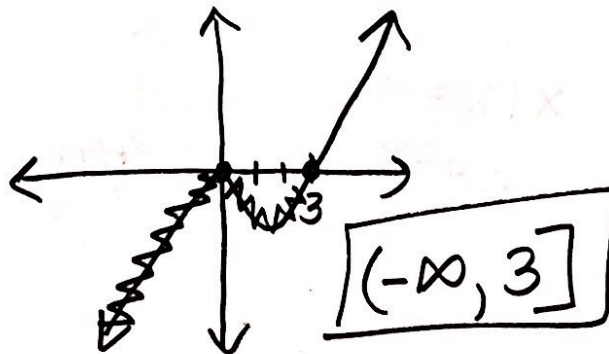
$x = 0, -2, 2$



8. $x^4(x-3) \leq 0$ x^5

$x = 0$ (mult. 4) B

$x = 3$ C



9. $2x^3 - 3x^2 - 32x > -48$

$(2x^3 - 3x^2) - (32x + 48) > 0$

$x^2(2x-3) - 16(2x-3) > 0$

$(2x-3)(x^2-16) > 0$

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

$x = \frac{3}{2}, -4, 4$

