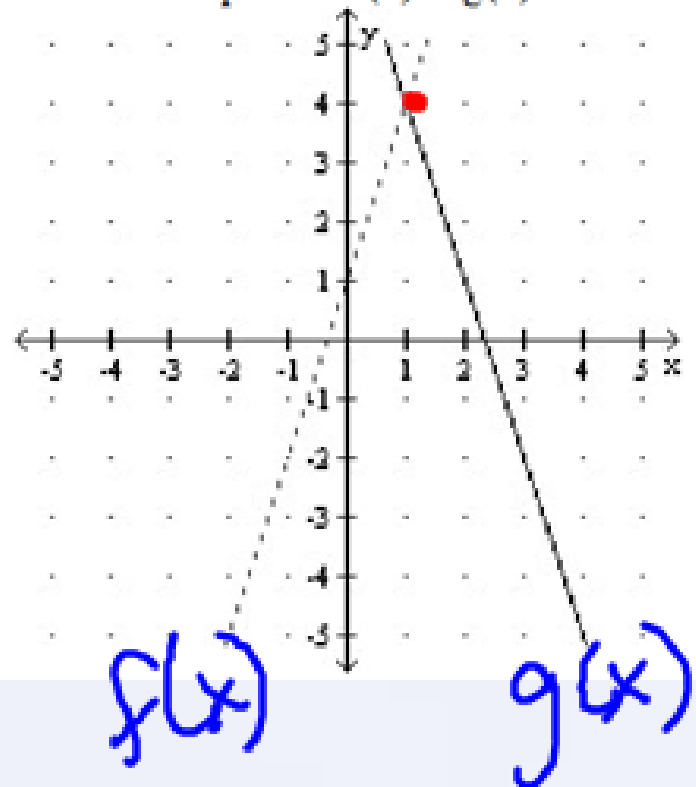


Do Now on Packet....

Let $f(x)$ be the function represented by the dashed line and $g(x)$ be the function represented by the solid line. Solve the equation $f(x) = g(x)$. Solve the equation $f(x) < g(x)$. Solve the equation $f(x) \geq g(x)$.



$$f(x) = g(x) = (1, 4)$$
$$x = 1$$
$$f(x) < g(x) \quad x < 1$$

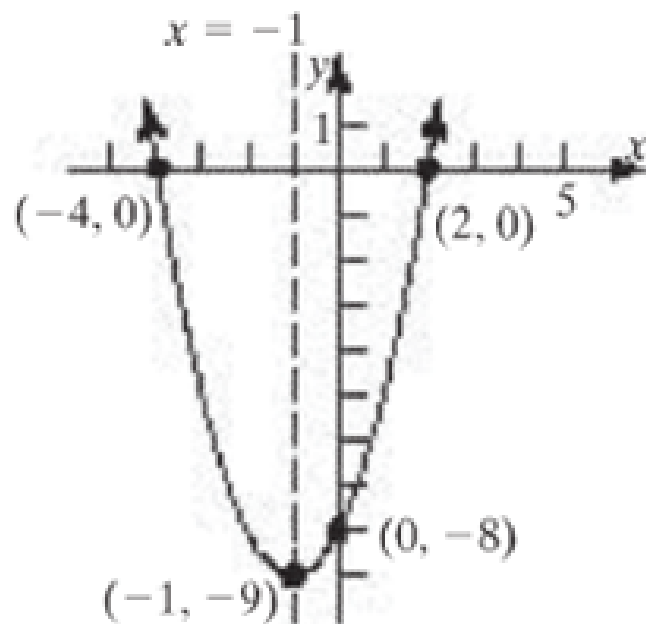
$$f(x) \geq g(x)$$
$$x \geq 1$$

Homework Due Today

p.152 #33, 34, 43, 44, 49, 50

Homework Answers...

33. (a)



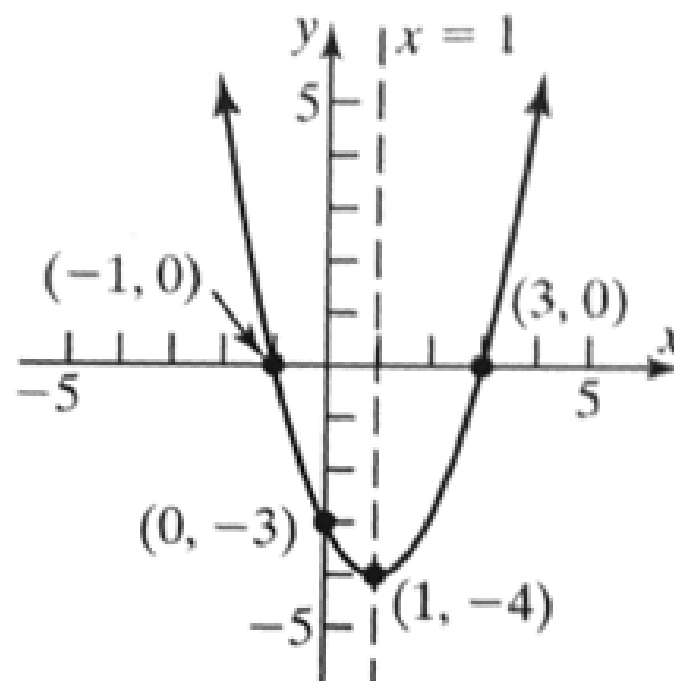
(b) Domain: $(-\infty, \infty)$

Range: $[-9, \infty)$

(c) Decreasing: $(-\infty, -1)$

Increasing: $(-1, \infty)$

34. (a)



(b) Domain: $(-\infty, \infty)$

Range: $[-4, \infty)$

(c) Decreasing: $(-\infty, 1)$

Increasing: $(1, \infty)$

43. $f(x) = (x + 1)^2 - 2 = x^2 + 2x - 1$

44. $f(x) = (x-2)^2 + 1 = x^2 - 4x + 5$

49. Minimum Value; (-3, -18)

50. Maximum value; (3, 18)

SECTIONS 3.5

INEQUALITIES INVOLVING
QUADRATIC FUNCTIONS

Homework Due Monday

p.166 #3 - 8

To solve an inequality involving a quadratic function

you must.... find the x-intercepts.

3 method...

- factoring

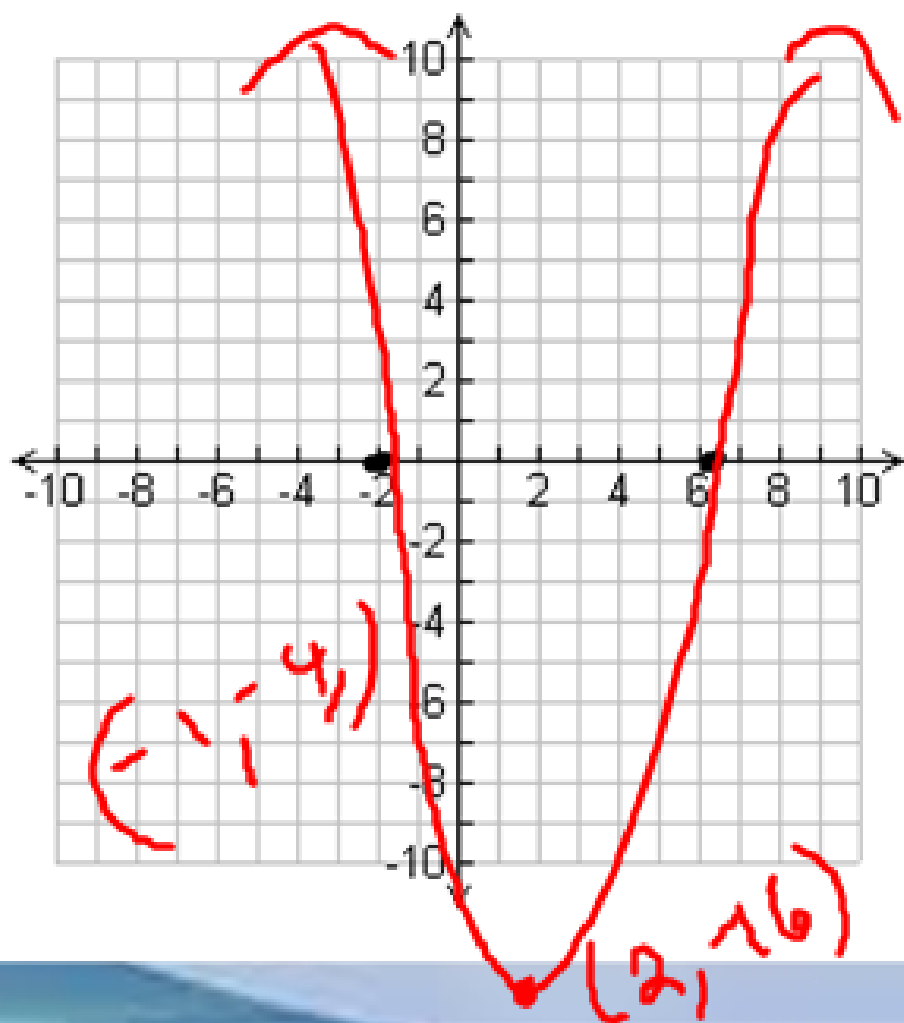
- completing the square

- Quadratic formula
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

EXAMPLE

Solving an Inequality

Solve the inequality $x^2 - 4x - 12 \leq 0$
and graph the solution set.



$$x^2 - 4x - 12 = 0$$
$$(x - 6)(x + 2) = 0$$

$$x = 6, -2$$

$$\frac{-b}{2a} = \frac{-(-4)}{2(1)} = 2$$

$$f(2) = -16$$

EXAMPLE

Solving an Inequality

Solve the inequality $2x^2 - 5x + 2 > 0$

and graph the solution set.

$a=2$ $b=-5$ $c=2$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(2)(2)}}{2(2)}$$

$$x = \frac{5 \pm \sqrt{9}}{4}$$

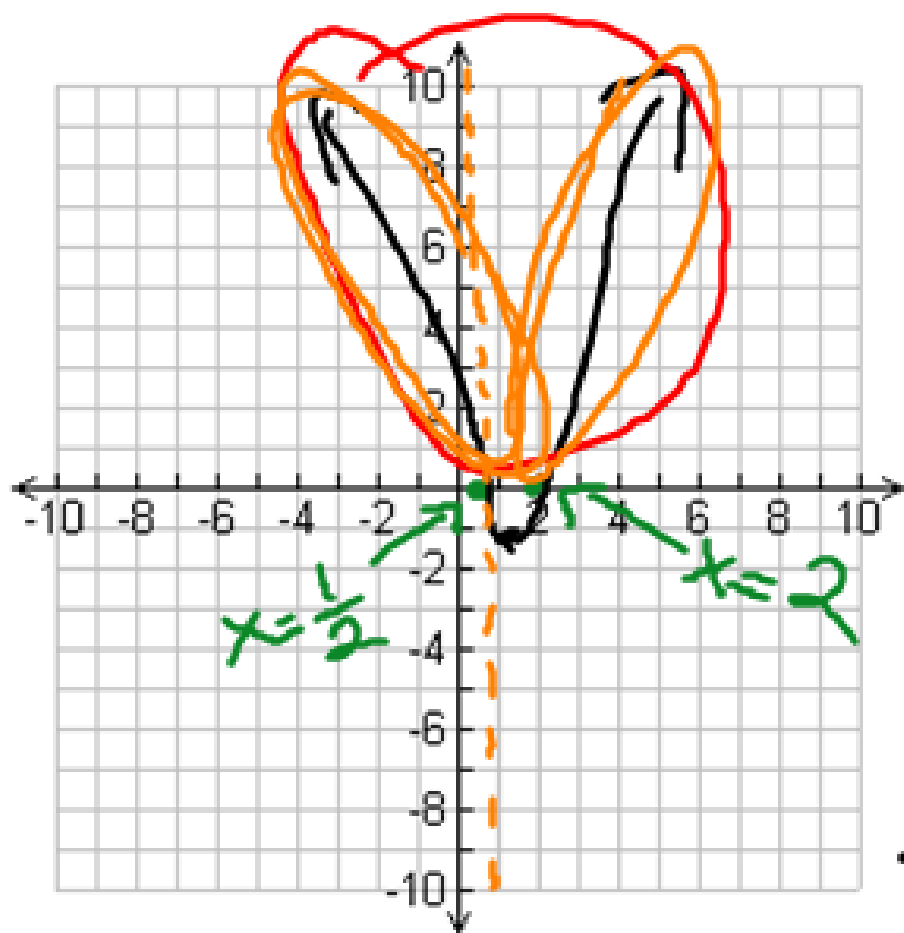
$$x = \frac{5 \pm 3}{4} \rightarrow \boxed{2}$$

$$\rightarrow \boxed{\frac{1}{2}}$$

$$\frac{-b}{2a} = \frac{5}{4} = 1.25$$

$$f\left(\frac{5}{4}\right) = \frac{-9}{8} = -1.125$$

$x < \frac{1}{2}$ or $x > 2$



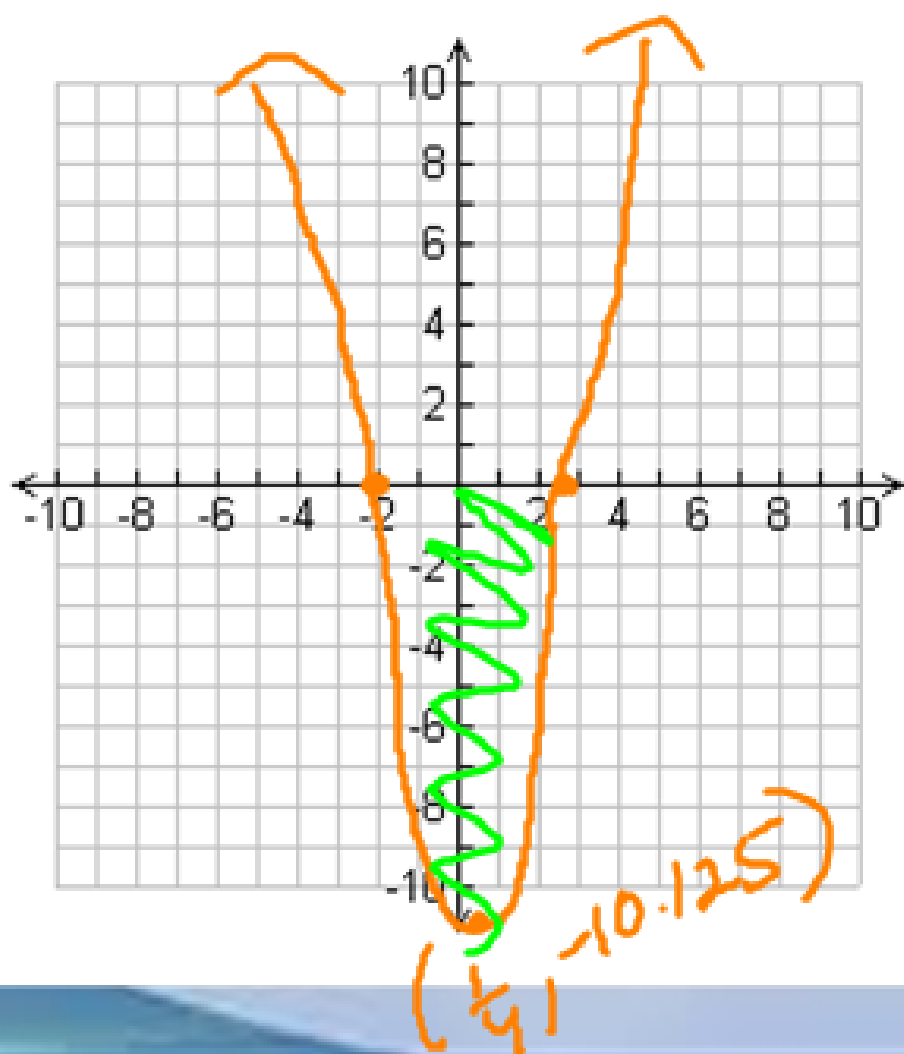
EXAMPLE

Solving an Inequality

Solve the inequality $-2x^2 \leq 4x + 5$ and graph the solution set.

$$x + 10$$

$$4x + 5$$



Answer

$$x \geq -2$$

$$x \leq 2.5$$

Work on Review Packet