Name _____ Date _____ Class _____

LESSON 5-7

Practice A

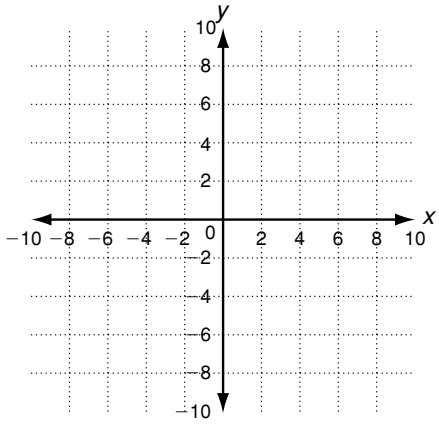
Solving Quadratic Inequalities

Graph each inequality and shade the solution region. Use a test point to verify the solution region.

1. $y < x^2 - 2x + 3$

a. *y*-intercept is 3.

b. Vertex is $(1, 2)$.



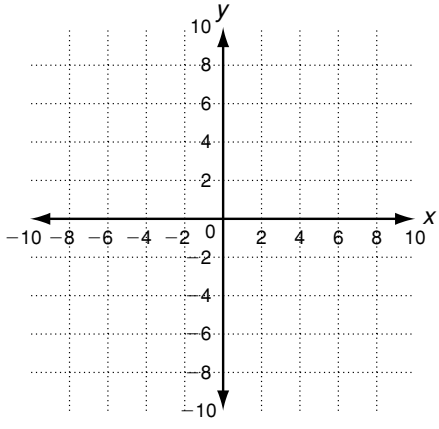
c. Test point **(0, 0)**

0 < 3 ✓

2. $y \geq -x^2 + 4x - 5$

a. *y*-intercept is _____

b. Vertex is _____



c. Test point _____

Solve each inequality by using algebra.

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

a. Write the related equation.

b. Solve for *x* to find the critical values.

c. Test an *x*-value in each interval, then write the solution.

Three intervals, $x \leq -2$, $-2 \leq x \leq 1$, $x \geq 1$

Try $x = -3$, $(-3)^2 + (-3) - 8 \leq -6$

$9 - 3 - 8 = -2$, not less than -6

Try $x = 0$, $(0)^2 + (0) - 8 \leq -6$

$0 + 0 - 8 \leq -6$ is true

Try $x = 2$ $(2)^2 + (2) - 8 \leq -6$

$4 + 2 - 8 = -2$, not less than -6

4. $x^2 + 10x + 25 > 9$

5. $x^2 - x < 12$

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a. *y*-intercept is 3.

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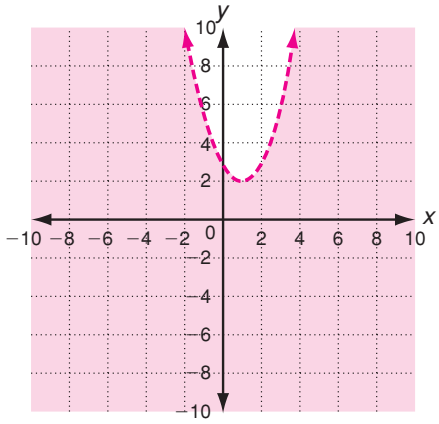


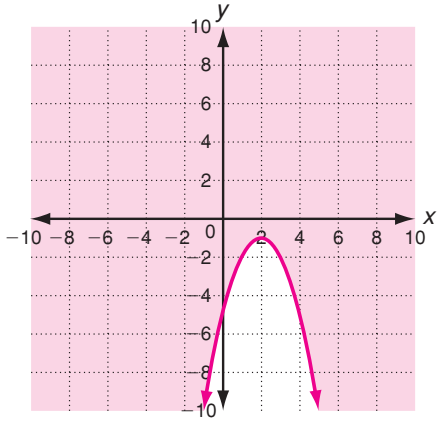
c. Test point (0, 0)

$0 < 3$ ✓

2. $y \geq -x^2 + 4x - 5$

a. *y*-intercept is −5

b. Vertex is (2, −1)



c. Test point (0, 0)

$0 \geq -5$ ✓

Solve each inequality by using algebra.

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

a. Write the related equation. $x^2 + x - 8 = -6$

b. Solve for *x* to find the critical values. $x = -2, 1$

c. Test an *x*-value in each interval, then write the solution. $-2 \leq x \leq 1$

Three intervals, $x \leq -2$, $-2 \leq x \leq 1$, $x \geq 1$

Try $x = -3$, $(-3)^2 + (-3) - 8 \leq -6$

$9 - 3 - 8 = -2$, not less than -6

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$0 + 0 - 8 \leq -6$ is true

Try $x = 2$ $(2)^2 + (2) - 8 \leq -6$

$4 + 2 - 8 = -2$, not less than -6

4. $x^2 + 10x + 25 > 9$

$x < -8$ or $x > -2$

5. $x^2 - x < 12$

$-3 < x < 4$