

Unit 3 Lesson 6

Quadratic Inequalities

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Math 2 – Honors
Unit 3 – Quadratic Functions Continued
Lesson 6 → Quadratic Inequalities

Name _____
Date _____ Pd _____

Review:

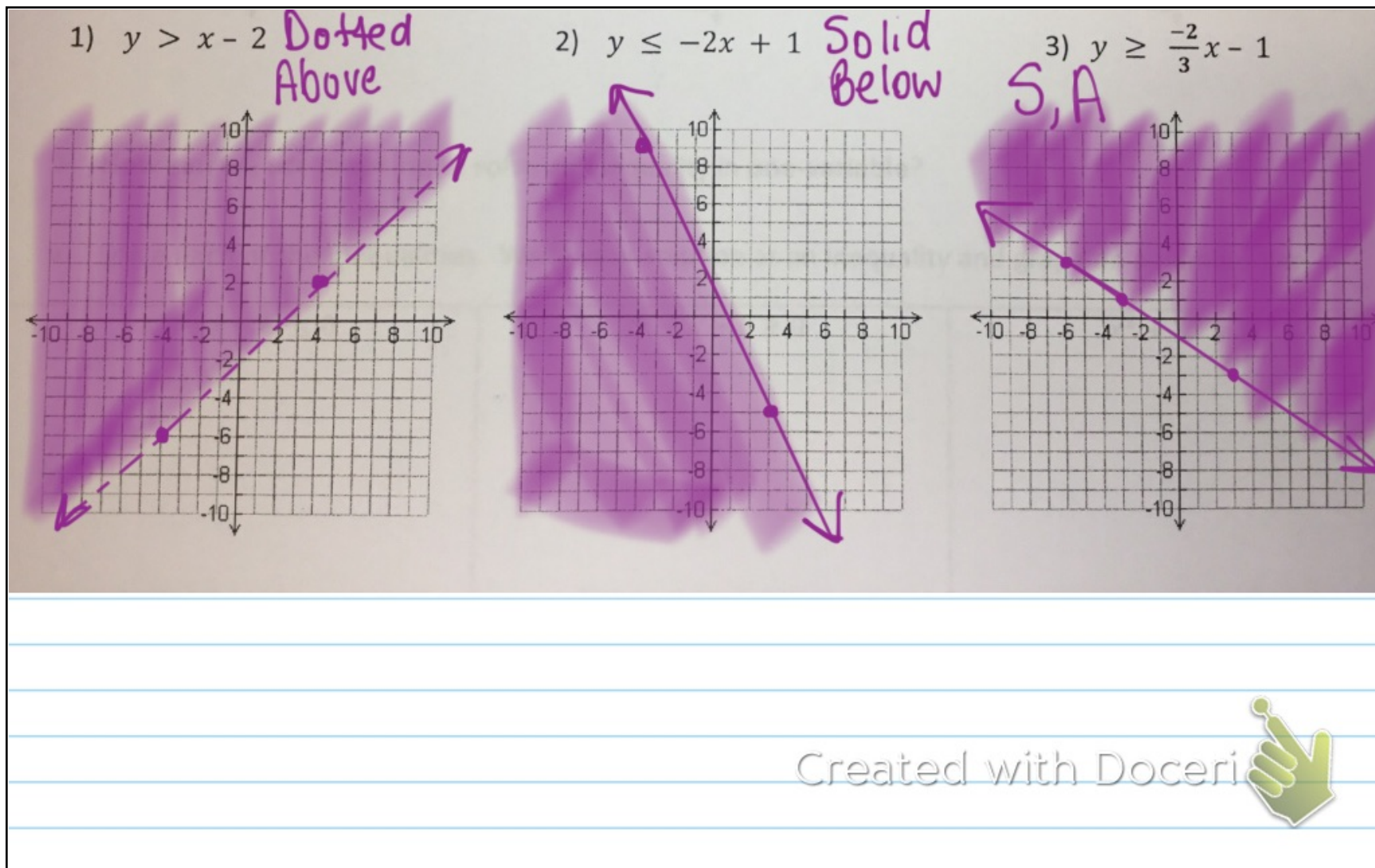
➤ Steps to Graph an Inequality:

- ✓ Graph the boundary line
 - ➔ If the symbol is $<$ or $>$ use a dotted line
 - ➔ If the symbol is \leq or \geq use a solid line
- ✓ Determine the shading
 - ➔ If the symbol is $>$ or \geq then shade above the line or curve
 - ➔ If the symbol is $<$ or \leq then shade below the line or curve
- ✓ You can check your shading by picking a point on the graph and plugging it into the inequality. If it is a solution then shade that way. If it is not a solution, then shade the other way.

➤ EXAMPLES: Graph each linear or quadratic inequality

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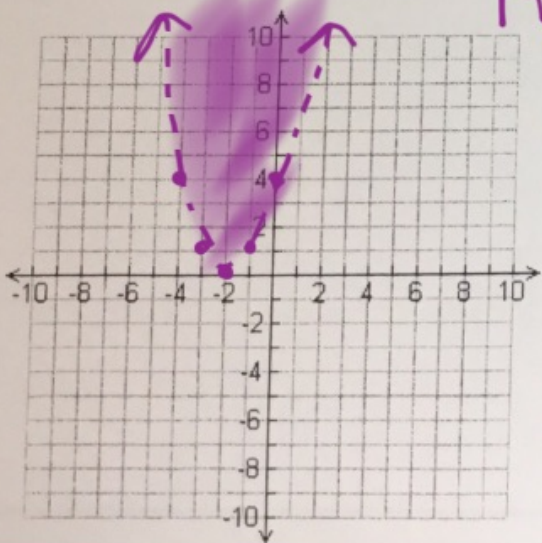




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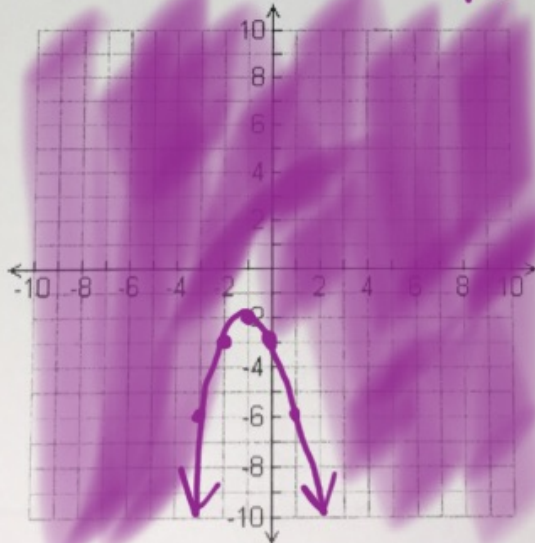
4) $y > x^2 + 4x + 4$

D
A



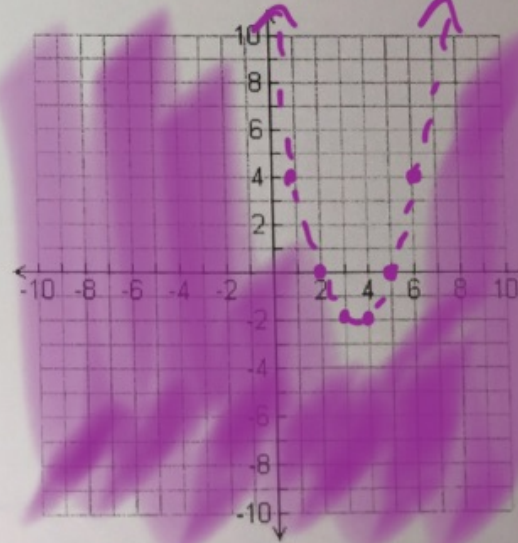
5) $y \geq -x^2 - 2x - 3$

S
A



6) $y < x^2 - 7x + 10$

D
B



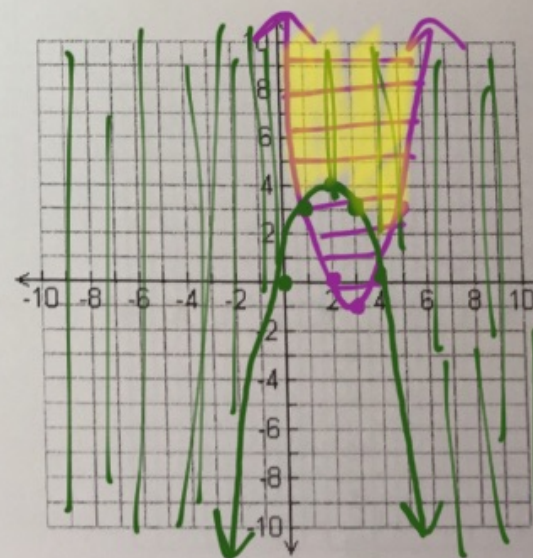
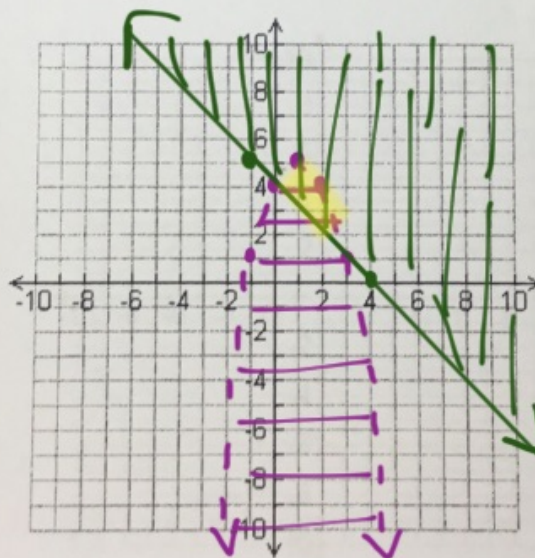
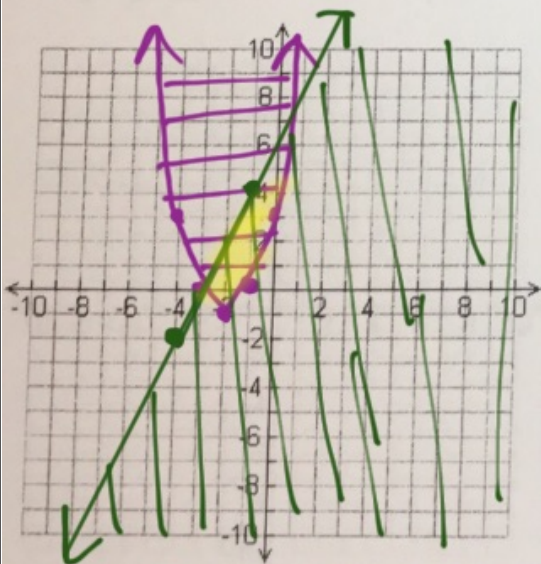
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7) $y \geq x^2 + 4x + 3$ S,A
 $y \leq 2x + 6$ S,B

8) $y < -x^2 + 2x + 4$ D,B
 $y > -x + 4$ D,A

9) $y \geq x^2 - 6x + 8$ S,A
 $y \geq -x(x - 4)$ S,A



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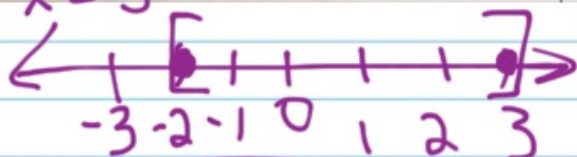
- How can we use graphing to solve an inequality in **one-variable**? ** \leq or \leq in between *
** \geq or \geq outside ***
- Solve each of the inequalities. Write your solution as an inequality and graph on a number line.

$$x^2 - x - 6 \leq 0$$

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

$$\begin{matrix} x-3 \leq 0 & x+2 \leq 0 \\ +3 & +3 \\ +3 & -2 \end{matrix}$$

$$x \leq 3 \quad x \leq -2$$

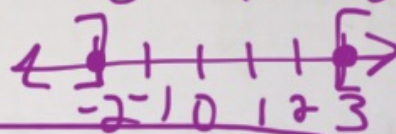


$$[-2, 3]$$

$$x^2 - x - 6 \geq 0$$

$$(x-3)(x+2) \geq 0$$

$$x \geq 3 \quad x \geq -2$$



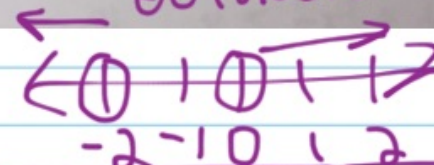
$$(-\infty, -2] \cup [3, \infty)$$

$$x^2 + 2x > 0$$

$$x(x+2) > 0$$

$$x > 0 \quad x > -2$$

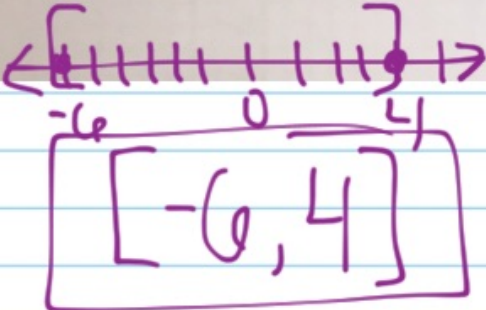

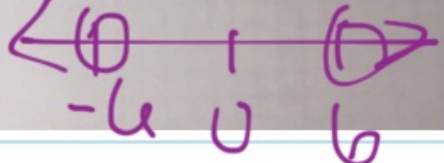
outsides



$$(-\infty, -2) \cup (0, \infty)$$

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$x^2 + 2x - 24 \leq 0$ $(x+6)(x-4) \leq 0$ $x \leq -6 \quad x \leq 4$ <p>between</p>	$3x^2 - 5x > 8$ <p>outsides</p> $3x^2 - 5x - 8 > 0$ $x^2 - 5x - 24 > 0$ $(x-\frac{8}{3})(x+3) > 0$ $(3x-8)(x+1) > 0$ $3x > 8 \quad x > -1$ $x > \frac{8}{3}$	$x^2 + 2x > 2x + 36$ <p>outsides</p> $x^2 - 36 > 0$ $(x-6)(x+6) > 0$ $x > 6 \quad x > -6$
		
	$(-\infty, -1) \cup (\frac{8}{3}, \infty)$	$(-\infty, -6) \cup (6, \infty)$

Page 25-26 Odd

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A large rectangular area with a black border, containing horizontal blue lines for writing. The lines are evenly spaced and cover most of the page's width and height.

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