

7.1 Quadratic Inequalities  
pg. 154  $x^2$

$$x^2 - 2x - 3 > 0$$

positive

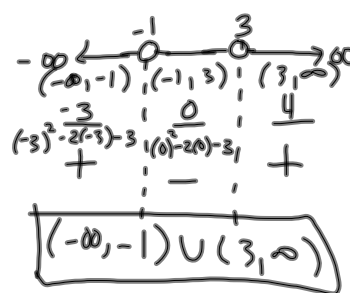
$$(x+1)(x-3) \quad -3 \neq 2$$

1. Find the zeros

$$\begin{array}{l} x+1=0 \quad x-3=0 \\ -1 \quad -1 \quad +3 \quad +3 \\ x=-1 \quad x=3 \end{array}$$

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2. put the zeros on a number line and make a sign chart



$(-\infty, -1) \cup (3, \infty)$

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$-3x^2 + 5x + 2 \leq 0$

Algebraically | graphically

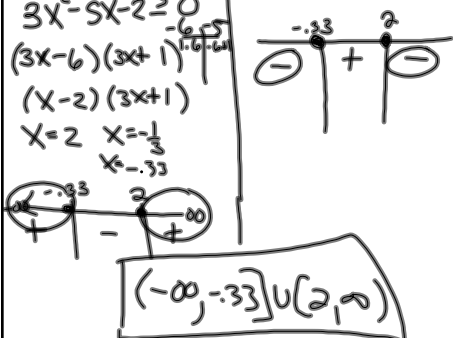
$$-1(3x^2 - 5x - 2) \leq 0$$

$$3x^2 - 5x - 2 \geq 0$$

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

$$x = -\frac{1}{3} \quad x = 2$$

$x = 2 \quad x = -0.33$

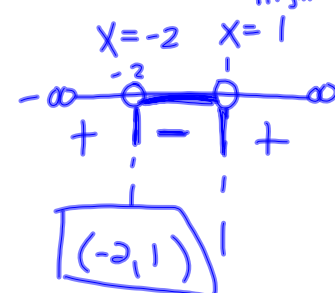


$(-\infty, -0.33] \cup [2, \infty)$

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$x^2 + x - 2 < 0$

negative

$$x = -2 \quad x = 1$$



$(-2, 1)$

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Check in calculator

$$y_1 = x^2 + x - 2 < 0$$


2nd math



A)  $(-\infty, -2) \cup (1, \infty)$   
 B)  $(-2, 1) <$   
 C)  $[-2, 1] \leq$

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$2x^2 - 7x + 3 \leq 0$

$$x = 0.5 \quad x = 3$$


$[0.5, 3]$

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$$3x^2 + 24x \geq -41$$

$$+41 \quad +41$$

$$3x^2 + 24x + 41 \geq 0$$

round to hundredths (2 decimal places)

$$x = -5.53 \quad x = -2.47$$

+	-	+
-5.53	-2.47	

$$(-\infty, -5.53] \cup [-2.47, \infty)$$

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$$\textcircled{2} -x^2 - 2x + 8 \leq 0$$

$$x = -4 \quad x = 2$$

⊖	⊕	⊖
-	+	-
-4	2	

$$(-\infty, -4] \cup [2, \infty)$$

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