

Name: KEY

Date: _____

Math 1050 PRACTICE Quiz (4.3-5.4)

1. Solve the following inequality and state the solution in interval notation.

$$3x^2 - x < 14$$

$$3x^2 - x - 14 < 0$$

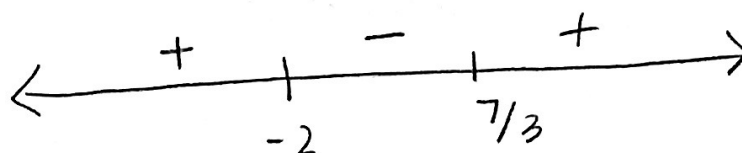
$$(3x-7)(x+2) < 0$$

$$x = \frac{7}{3} \quad x = -2$$

$$3x - 7$$

x	$3x^2$	$-7x$
2	$6x$	-14

+	•
-1	$= 142$
$+6$	-7



$$f(-3) =$$

$$\left(-2, \frac{7}{3}\right)$$

2. Solve the following inequality and state the solution in interval notation.

$$\frac{2}{x+3} \geq \frac{1}{x-5}$$

$$\frac{2}{x+3} - \frac{1}{x-5} \geq 0$$

$$\frac{2x-10 - (x+3)}{(x+3)(x-5)} \geq 0$$

$$\frac{x-13}{(x+3)(x-5)} \geq 0$$

$$x\text{-int: } 0 = x-13$$

$$x = 13$$

$$\text{other: } x \neq -3$$

$$x = 5$$

$$(-3, 5) \cup [13, +\infty)$$



3. An appliance wholesaler finds the number x appliances she can sell each week is related to the price p by the equation $x = 2150 - p$, $0 \leq p \leq 2150$. What is the maximum revenue R ? ($R = xp$) Justify your answer.

$$p = 2150 - x$$

$$R = x(2150 - x)$$

$$R = 2150x - x^2$$

$$x = \frac{-2150}{2(-1)} = 1075$$

$$R = 2150(1075) - (1075)^2$$

$$R = \$1,155,625$$

1155625

4. $h(t) = -t^2 + 4t + 7$ represents the height of a ball, in meters, thrown vertically t seconds after it was thrown.

- a) What will be the height of the ball at 3 sec?

$$h(3) = -(3)^2 + 4(3) + 7 = 10 \text{ ft}$$

- b) After how many seconds does the ball reach its maximum height?

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

- c) What is the height of the ball when it is at maximum height?

$$h(2) = -(2)^2 + 4(2) + 7 = 11 \text{ ft.}$$