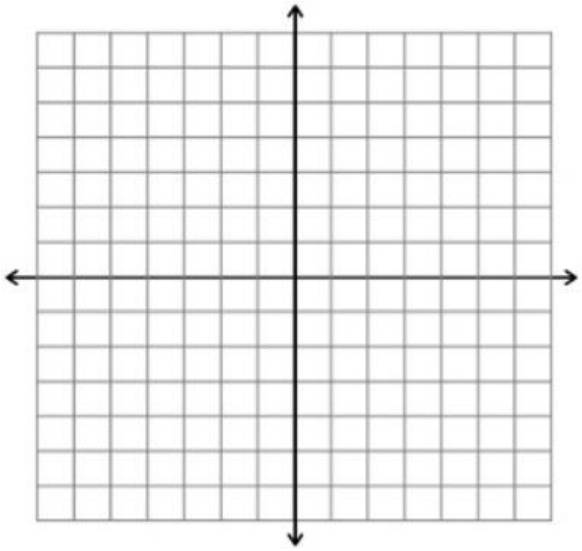
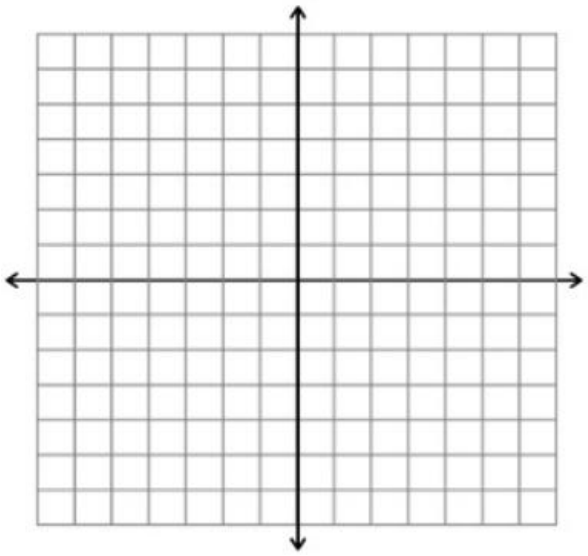
Name:_____Period:_____Date:_____

# Unit 2: Lesson 1 Practice Quiz

**Directions: Show your statements, reasons, and work logically. Be sure to <u>explain</u> everything.**

1. For each inequality below:
   a) Make a sketch to show how the functions and constants in the inequality are related.
   b) Use algebraic reasoning to locate the key intercepts and points of intersection.
   c) Combine what you learn from your sketch and algebraic reasoning to solve the inequality.
   d) Describe each solution set using symbols, a number line graph, and interval notation.

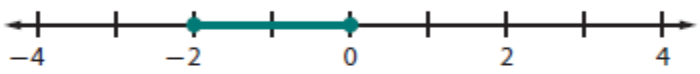
| | |
|---|---|
| Sketch $2x^2 - 7 \geq 73 - 6x$  | Vertex<br><br>y-intercept |
| x-intercepts | Solution Set:<br><br>Symbols:<br><br>Number line:<br><br>Interval: |

| Sketch $3x^2 - 7x < -2$  | Vertex<br><br>y-intercept |
|---|---|
| x-intercept | Solution Set:<br><br>Symbols:<br><br>Number line:<br><br>Interval: |

2. Below are descriptions of the solutions for six inequalities. Describe each solution using interval notation.

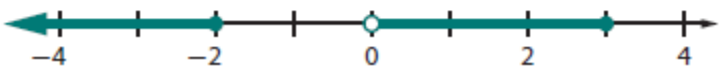
**a.** $k \leq -3$ or $k > -1$

**b.** All numbers between negative 1 and positive 3.5

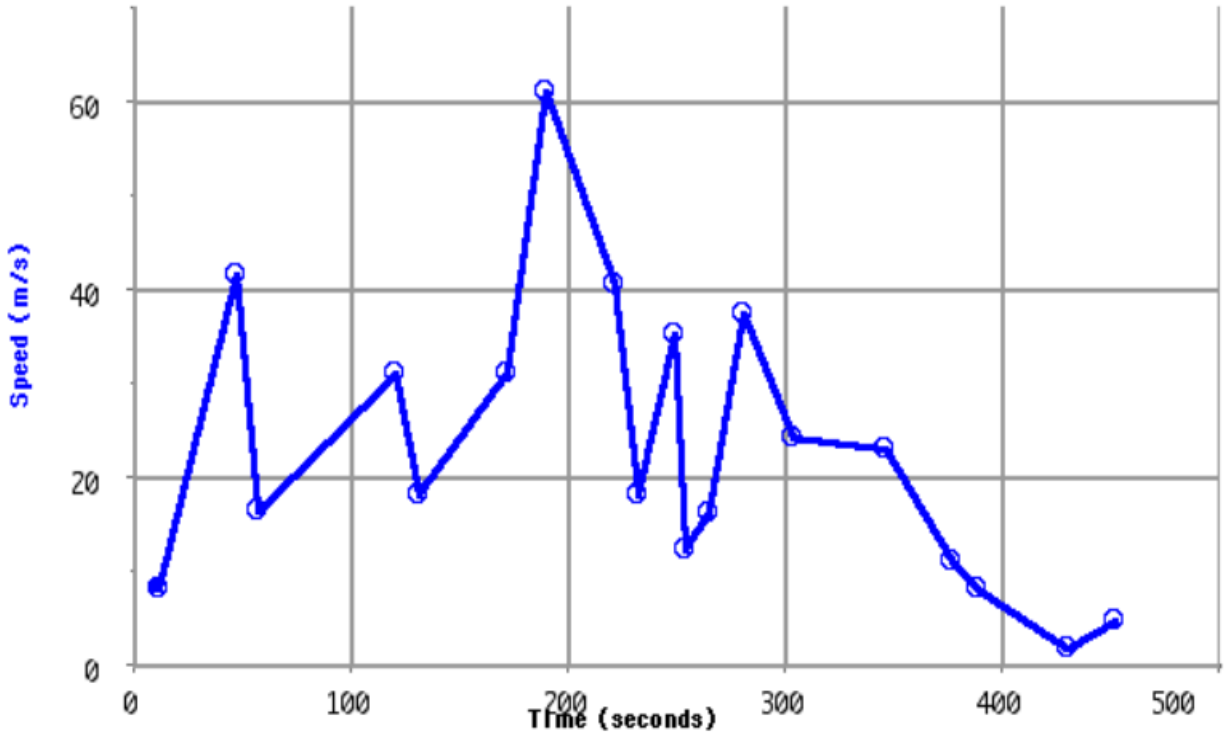
**c.** 


**d.** $2 < g < 6$

**e.** All numbers less than 4 or greater than 7

**f.** 

**3.** The graph below shows the speed of a car for errands around town. Suppose that $s(t)$ gives the speed of the car as a function of time.




**a.** Evaluate $s(150)$

**b.** Solve $s(t) = 40$ and describe what it tells you about the speed of the car.

**c.** Write a question that can be answered by solving the inequality $s(t) < 40$.

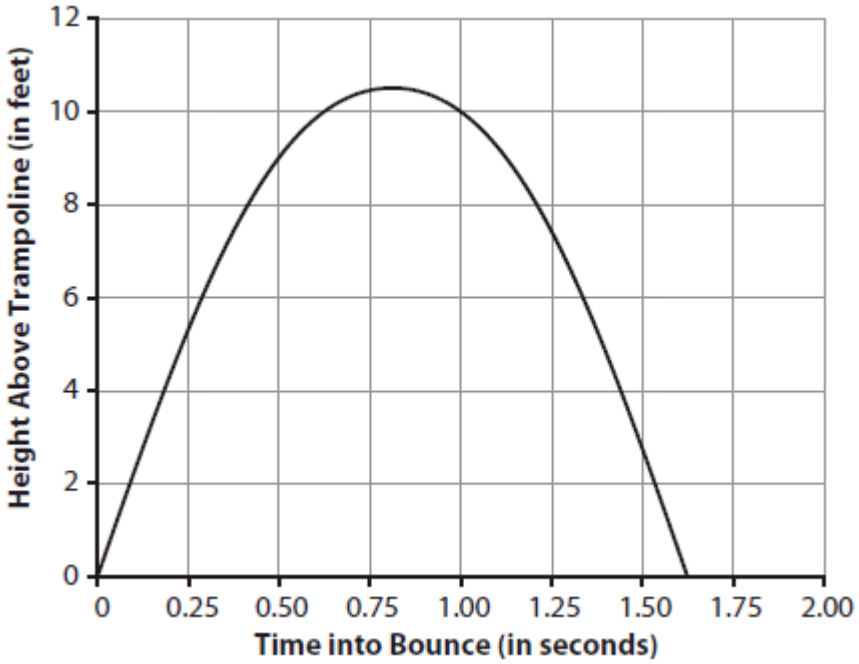
**d.** Solve the inequality $s(t) < 40$ and display your solution on a number line graph, using symbols and using Interval Notation.

*Solution using symbols:*

*Solution on number line graph:*

*Solution using Interval Notation:*

4. The graph below shows the height of a gymnast's bounce above a trampoline as a function of time after the takeoff bounce. The function rule for the graph shown is $h(t) = -16t^2 + 26t$.




**a.** Evaluate $h(1.25)$.

**b.** Solve $h(t) = 6$ and describe what it tells you about the gymnast bounce.

**c.** Write a question that can be answered by solving the inequality $h(t) > 6$.

**d.** Solve the inequality $h(t) > 6$and display your solution on a number line graph, using symbols and using Interval Notation.
*Solution using symbols:*

*Solution on number line graph:*

*Solution using Interval Notation:*