Algebra 2 Trig H – Day 3 - Notes **Name:** _____

Solve inequalities by graphing (calculator INTERSECT feature)

Round values to the nearest hundredth if necessary.

Solve the following equations algebraically and graph below.

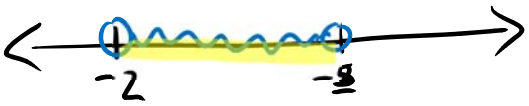
1. $|5x+6|<4$

$-2 < x < -2/5$

$-4 < 5x+6 < 4$

$-6 \quad -6 \quad -6$

$-10 < 5x < -2$



2. $|5x+6| \geq 4$

$5x+6 \geq 4$

$5x \geq -2$

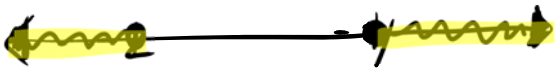
$x \geq -2/5$ OR

$5x+6 \leq -4$

$-6 \quad -6$

$5x \leq -10$

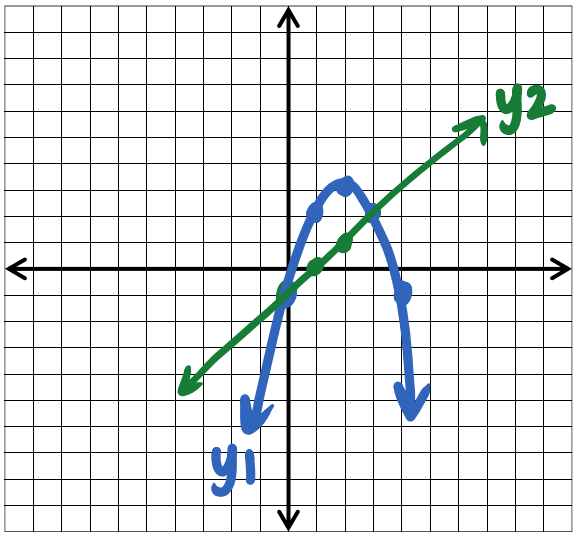
$x \leq -2$



Graph the equations below to answer 3 and 4.

3. $y_1 = -(x-2)^2 + 3$

$y_2 = x - 1$



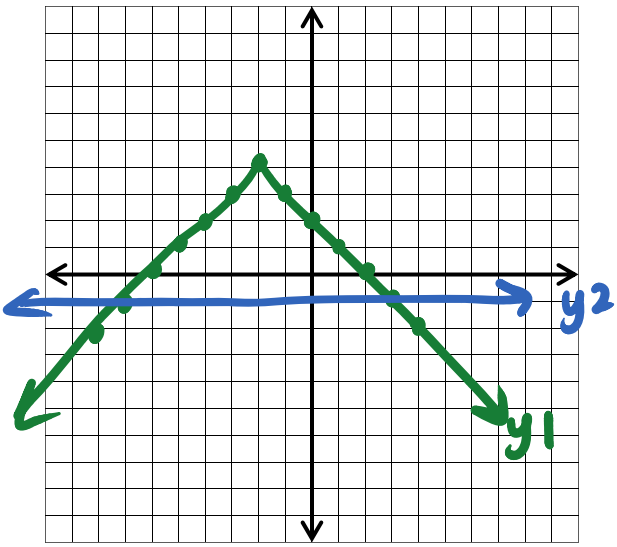
3. What x-value(s) make…

a. $Y_1 = Y_2$ $x = 0, 3$

b. $Y_1 < Y_2$ $(-\infty, 0) \cup (3, \infty)$

4. $y_1 = -|x+2|+4$

$y_2 = -1$



4. What x-value(s) make…

a. $Y_1 = Y_2$ $x = -7, 3$

b. $Y_1 \geq Y_2$ $[-7, 3]$

5. **Use INTERSECT to solve the following equations on your calculator. Enter one side of the equation as Y_1 and the other side as Y_2. You may approximate your solutions to the nearest hundredth.**

a. $|5x+1| \leq 7$

$-1.6 \leq x \leq 1.2$

b. $15 < |x+8|$

$x > 7$ or $x < -23$

c. $3x^2 > 10$

$x < -1.83$ or $x > 1.83$

d. $-x^2+5x+6 \geq \frac{1}{2}x-4$

$[-1.6, 6.1]$

6. The height of a jet liner during a flight is given by $y = -5,000x^2 + 20,000x$, where x = # of hours since takeoff and y = height in feet.

a. Graph this equation on your calculator.

b. When is the plane above 15,000 feet?

$1 < x < 3$

c. When is the plane on the ground?

At $t = 0, 4$ s

d. When is the plane below 8,000 feet?

$0 \leq x < 0.45$ OR $3.55 < x \leq 4$

e. When is the plane between 7,500 feet and 10,000 feet (inclusive)?

$[0.42, 0.59] \cup [3.41, 3.58]$

7. The daily price-demand equation for whole milk in a chain of supermarkets is $q = 5,600 - 800p$ where p is the price per gallon and q is the number of gallons sold per day. Find the price(s) that will produce a revenue greater than $9,500.

Revenue = $p \cdot q = p(5600 - 800p) > 9,500$

$2.89 < x < 4.11$