Name: Key Name:_____ Name:_____ Name:_____

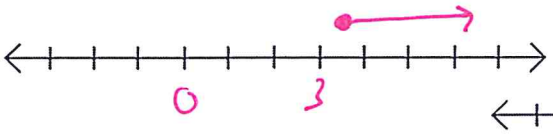
Integrated 1 Ch. 9 Team Test

Show all work for full credit. Pencil only.

1) Solve each inequality algebraically, then represent your solution on the number line provided.

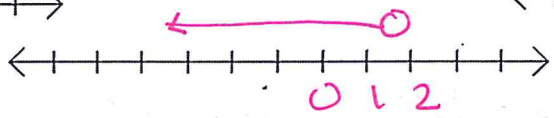
a) $7(x-2) \geq 12$

$7x - 14 \geq 12$
$+14 \quad +14$
$\frac{7x}{7} \geq \frac{26}{7}$
$x \geq 3.71$



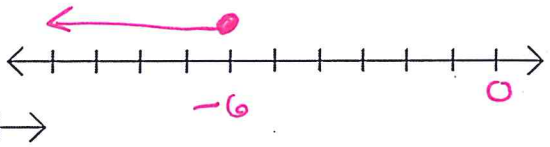
b) $11k - 2 < 3k + 10$

$+2 \quad +2$
$11k < 3k + 12$
$-3k \quad -3k$
$\frac{8k}{8} < \frac{12}{8}$
$k < 1.5$



c) $5 - h \geq 11$

$-5 \quad -5$
$-(-h) \geq (6) -$
$h \leq -6$

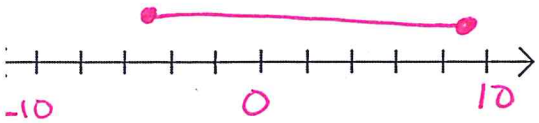


(4 pts each, ____/12 pts)

2) Solve each inequality algebraically, then represent your solution on the number line provided.

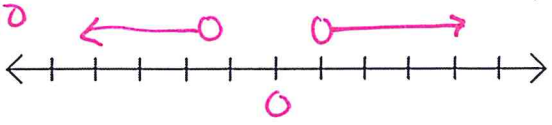
a) $|x-2| \leq 7$ nest

$-7 \leq x - 2 \leq 7$
$+2 \quad +2 \quad +2$
$-5 \leq x \leq 9$



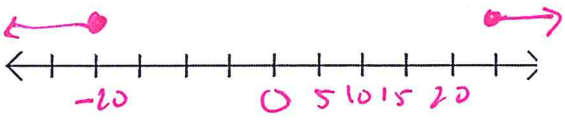
b) $|4x+1| > 5$ OR

$4x+1 > 5$ or $4x+1 < -5$
$-1 \quad -1 \qquad -1 \quad -1$
$4x > 4 \qquad 4x < -6$
$x > 1$ or $x < -1.5$



c) $|3+x| - 7 \geq 21$ OR

$+7 \quad +7$
$|3+x| \geq 29$
$3+x \geq 29$ or $3+x \leq -23$
$x \geq 25$ or $x \leq -20$



(5 pts each, ____/15 pts)

3) Lew says to his granddaughter Audrey, "even if you tripled your age and added 9, you still wouldn't be as old as I am." Lew is 60 years old. Write and solve an inequality to determine the possible ages Audrey could be.

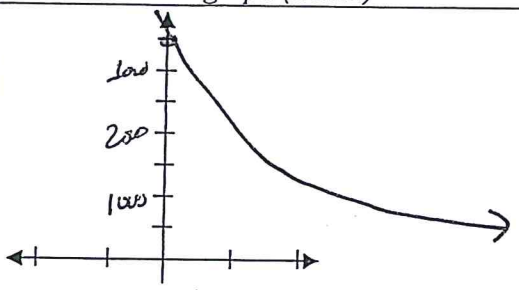
Audrey is less than 17 years old.

$3x + 9 < 60$
$3x < 51$
$x < 17$

(____/5 pts)

$1 - .22 = .78$

4) You buy a car for $3500. Your car depreciates (loses value) at a rate of 22% per year. Write an equation of an exponential function to model this situation. Then make a table of values and sketch a graph.

equation	*table*	*graph (sketch)*
$y = 3500(.78)^x$	x: -2, -1, 0, 1, 2 / y: —, —, 3500, 2730, 2129.4	

(3 points each, ____/9 pts)

5) Write the equation of an exponential function of the form $y = ab^x$ passing through the points

$$(2,3) \textit{ and } \left(5, \frac{1}{9}\right)$$

$3 = ab^2$ $\quad \frac{1}{9} = ab^5$

$\frac{\frac{1}{9} = ab^5}{3 = ab^2}$

$\frac{1}{27} = b^3$ $\quad b = \frac{1}{3}$

$3 = a\left(\frac{1}{3}\right)^2$

$3 = a\left(\frac{1}{9}\right)$

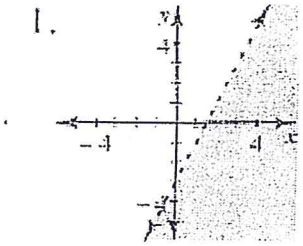
$a = 27$

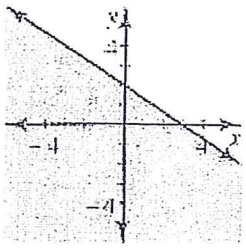
$y = 27\left(\frac{1}{3}\right)^x$

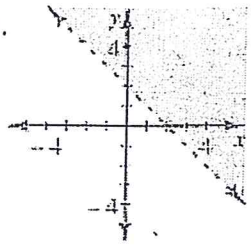
(____/5 pts)

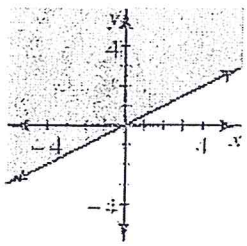
6) Match each graph below with the correct inequality.

a. $y > -x + 2$ b. $y < 2x - 3$ c. $y \geq \frac{1}{2}x$ d. $y \leq -\frac{2}{3}x + 2$

1.  B

2.  D

3.  A

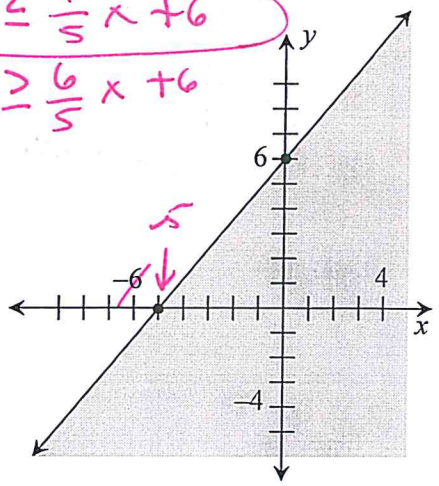
4.  C

(3 points each, ____/12 pts)

7) Examine the graph below.

$y \leq \frac{6}{5}x + 6$

$y \geq \frac{6}{5}x + 6$



a. Write an inequality for the graph. $y \leq \frac{6}{5}x + 6$

b. Give an example of a point on the graph that is a solution for the inequality?

(0, 0)

b. Is the point (-6, 0) a solution to the inequality, how do you know?

no! not on the line, nor in shaded region.

c. Is the origin a solution? Explain below.

i. Justify your answer using the graph.

(0, 0) satisfies the inequality $0 \leq 6$ ✓

ii. Justify your answer using the inequality from part (a).

$0 \leq \frac{6}{5}(0) + 6$

$0 \leq 6$

d. If the line was broken (or dashed) how would the inequality that you wrote in part (a) be different?

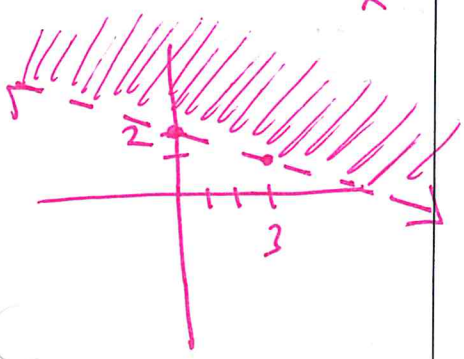
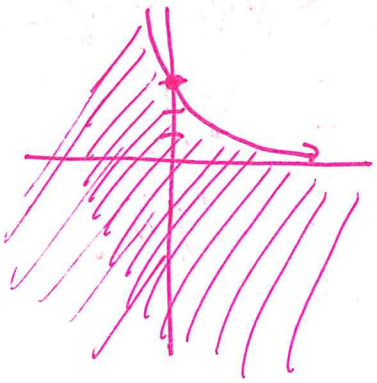
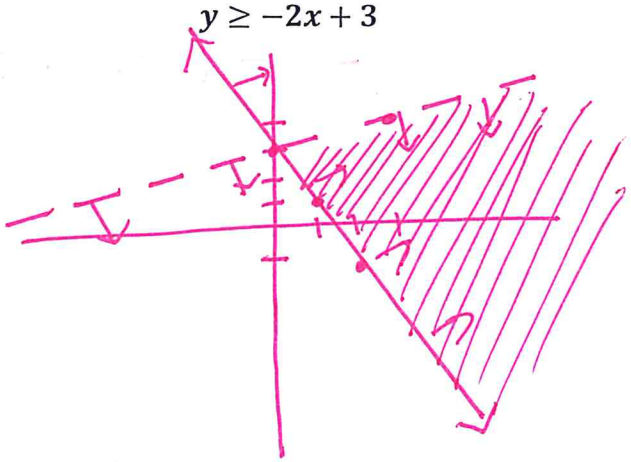
$y < \frac{6}{5}x + 6$, "not equal to"

e. If the other side of the line was shaded and the current shading was gone, how would the inequality that you wrote in part (a) be different? Explain why.

$y \geq \frac{6}{5}x + 6$ the inequality would flip since the shaded region flipped.

(3 points each,____/21 pts)

8) Graph the following:

$y > -\frac{1}{3}x + 2$	$y \leq 3(0.5)^x$	$y < \frac{1}{3}x + 3$ $y \geq -2x + 3$
$0 > 2$ ✓	$0 \leq 3$ ✓	
		

(7 points each,____/21 pts)

9) Is the point $(0,4)$ a solution to the system of inequalities? Explain with complete sentences.

X Y

yes! both inequalities are satisfied

$y \leq -3x+4$ $\quad 4 \leq -3(0)+4 \quad 4 \leq 4$ ✓

$y > 5x-2$ $\quad 4 > 5(0)-2 \quad 4 > -2$ ✓

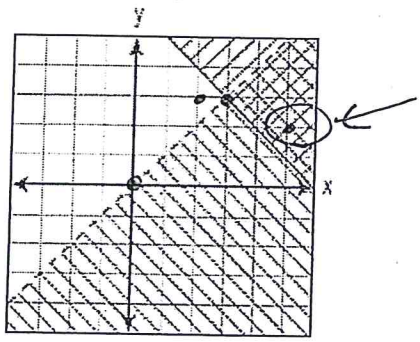
10) Which point is in the solution set of the system of inequalities shown on the accompanying graph?

a. $(0,0)$

b. $(3,3)$

c. $(5,2)$

d. $(2,3)$



11. Graph the following:

$y \geq -3x+4$

$y \leq 2(0.5)^x$

$0 \geq 4$

$0 \leq 2$