PreAP Algebra II
Unit 1A, Assessment 1 REVIEW

Name:_____

1. How would you describe the slope of a vertical line? Write an equation of a vertical line.

   m = undefined $x = \#$

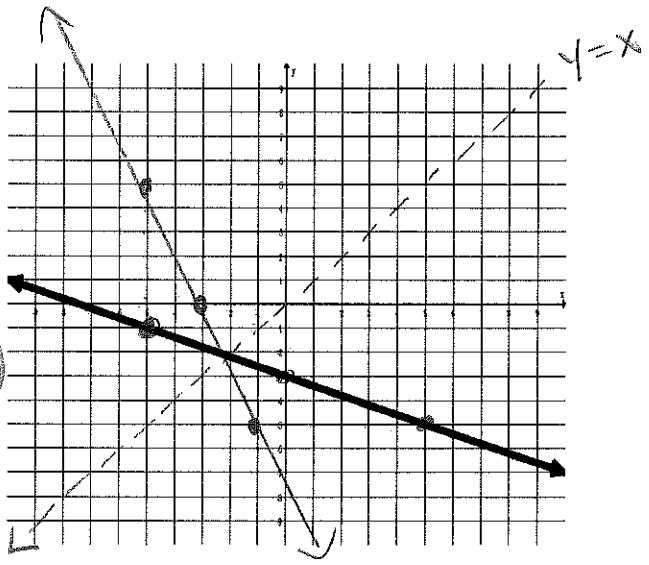
2. How would you describe the slope of a horizontal line? Write an equation of a horizontal line.

   $m = 0$ (zero) $y = \#$

3. The inverse of a function is reflection over $y=x$ (hint: use the word reflection)

4. To find the inverse you switch x & y values

5 - 6 use the graph at right.



5. Write the equation of the given graph.

   $b = -3$ $m = \frac{-2}{5}$

   $y = -\frac{2}{5}x - 3$

6. Graph the inverse. $(-5,-1)$; $(0,-3)$; $(5,-5)$

   $\downarrow$ $\downarrow$ $\downarrow$

   $(-1,-5)$; $(-3,0)$; $(-5,5)$

7. Given the function $f(x) = 3x - 15$, find the inverse function algebraically.

   $y = 3x - 15$

   $x = 3y - 15$

   $\frac{x}{3} + \frac{15}{3} = \frac{3y}{3}$

   $\boxed{y = \frac{1}{3}x + 5}$

8. What can you conclude about the slope of a function and its inverse?

   reciprocals → Because you switch the x & y

9. Find the equation of the line going through the point (-1, -5) that has a slope of $\frac{2}{3}$.

   x_1, y_1 m $y - y_1 = m(x - x_1)$

   $y + 5 = \frac{2}{3}(x + 1)$

   $y + 5 = \frac{2}{3}x + \frac{2}{3} - \frac{15}{3}$

   -5

   $\boxed{y = \frac{2}{3}x - \frac{13}{3}}$

10. If $f(x)=3x-4$, $g(x)=2x+5$ and $h(x)=x-6$

a. Find $f(g(x))$.

$f(2x+5)=3(2x+5)-4$

$=6x+15-4$

$=\boxed{6x+11}$

b. Find $h(f(x))$

$h(3x-4)=(3x-4)-6$

$=\boxed{3x-10}$

c. Find $f(h(3))$

$h(3)=3-6$

$=-3$

$f(-3)=3(-3)-4$

$=-9-4$

$=\boxed{-13}$

d. Find $g(h(f(-1)))$

$f(-1)=-7$

$h(-7)=-13$

$g(-13)=-26+5=\boxed{-21}$

e. If $f(g(h(x)))=5$, find the value of x.

$6x-25=5$

$6x=30$

$\boxed{x=5}$

$g(x-6)=2(x-6)+5$

$=2x-12+5$

$=2x-7$

$f(2x-7)=3(2x-7)-4$

$=6x-21-4$

$=6x-25$

11. Find the equation of the line that goes through (2,10) and (1,5).

x_1, y_1 x_2, y_2

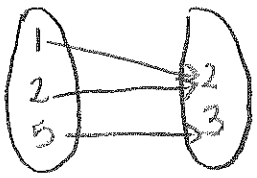
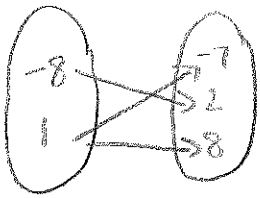
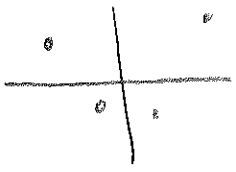
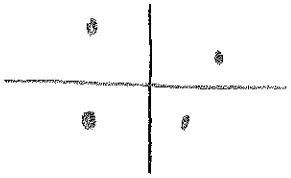
$m=\frac{y_2-y_1}{x_2-x_1}=\frac{5-10}{1-2}=\frac{-5}{-1}=5$

$y-10=5(x-2)$

$y-10=5x-10$

$\boxed{y=5x}$

12. Fill in the table by giving 2 examples of each type of representation. Give one example that is a function and one that is not a function.

Representation	Function	Not a function
Mapping		
Relation (ordered pairs)	(3,2) (9,4) (-2,1) (-9,4)	(1,8) (2,5) (2,7)
Graph		

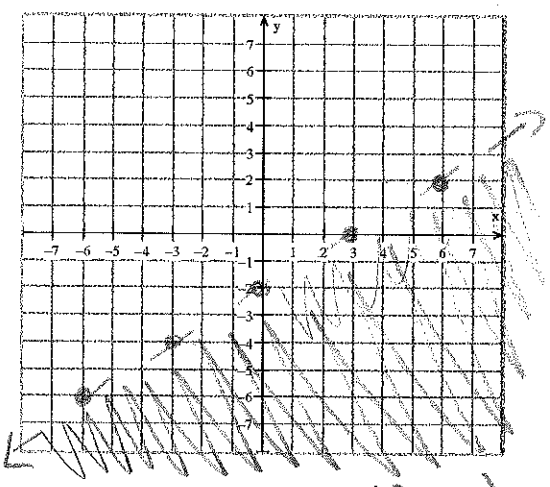
13-14

a. Graph the following inequalities on the graphs below

b. For each inequality, pick one point that is a solution and one point that is not a solution and prove your decision algebraically.

13. $2x-3y>6$

$\frac{-3y}{-3} > \frac{-2x}{-3} + \frac{6}{-3}$ $\quad y < \frac{2}{3}x - 2$



b. Point that **is** a solution $(0,-4)$

$2(0)-3(-4)>6$

$12>6$ ✓

c. Point that **is not** a solution $(0,0)$, $(3,0)$

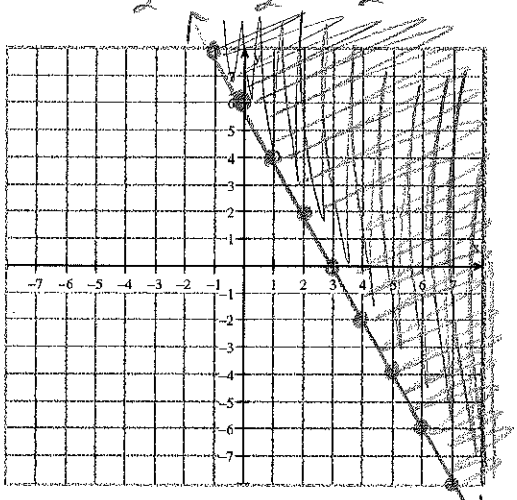
$2(0)-3(0)>6$ $\quad 2(3)-3(0)>6$

$0>6$ $\quad 6>6$

FALSE $\quad$ FALSE

14. $4x+2y\geq 12$

$\frac{2y}{2} \geq \frac{-4x}{2} + \frac{12}{2}$ $\quad y \geq -2x+6$



b. Point that **is** a solution $(1,4)$, $(5,0)$

$4(1)+2(4)\geq 12$ $\quad 4(5)+2(0)\geq 12$

$12\geq 12$ ✓ $\quad 20\geq 12$ ✓

c. Point that **is not** a solution $(0,0)$

$4(0)+2(0)\geq 12$

$0\geq 12$

FALSE

15. The table below shows the age and systolic blood pressure for a group of people who recently donated blood.

Age	35	48	50	34	55	30	26	41	37	24
Blood Pressure	128	140	135	119	146	132	104	132	121	108

a. Find the approximate systolic blood pressure of a person 54 years old. *(LinReg)* $y = 1.133x + 83.457$

$y = 1.133(54) + 83.457$ $\quad$ 145

b. Find the approximate age of a person whose systolic blood pressure is 125. (use eqt from a)

$125 = 1.133x + 83.457$

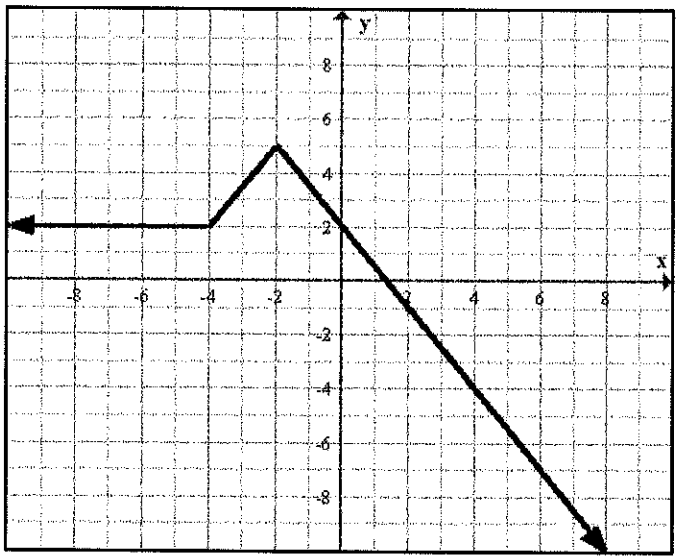
$41.543 = 1.133x$

$36.67 = x$

37 yrs old

Determine if the relation is a function then find the domain and range for the following graphs.

16.



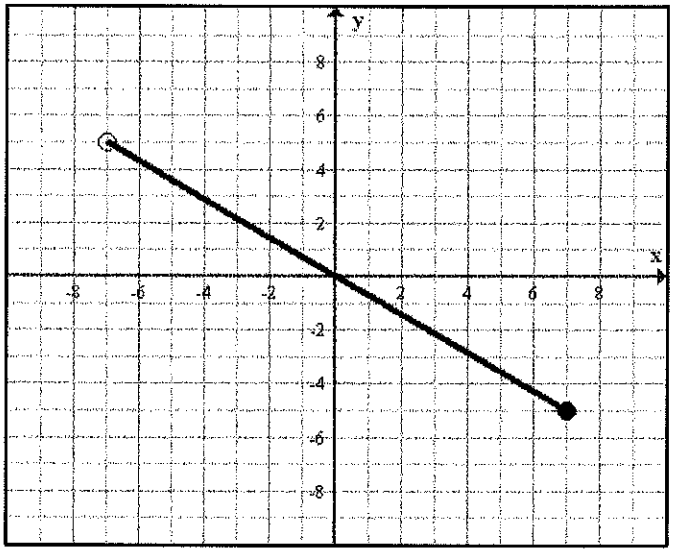
Function:

Yes/No Yes

Domain: $(-\infty, \infty)$

Range: $(-\infty, 5]$

17.



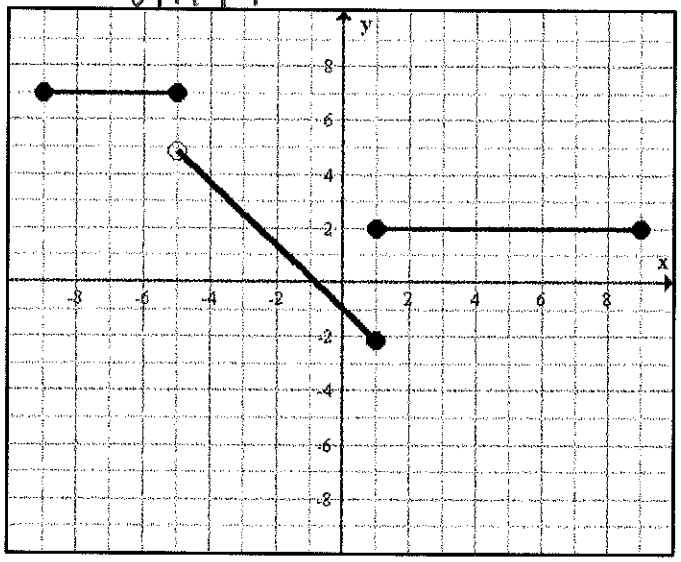
Function:

Yes/No yes

Domain: $(-7, 7]$

Range: $[-5, 5)$

18. DNIT



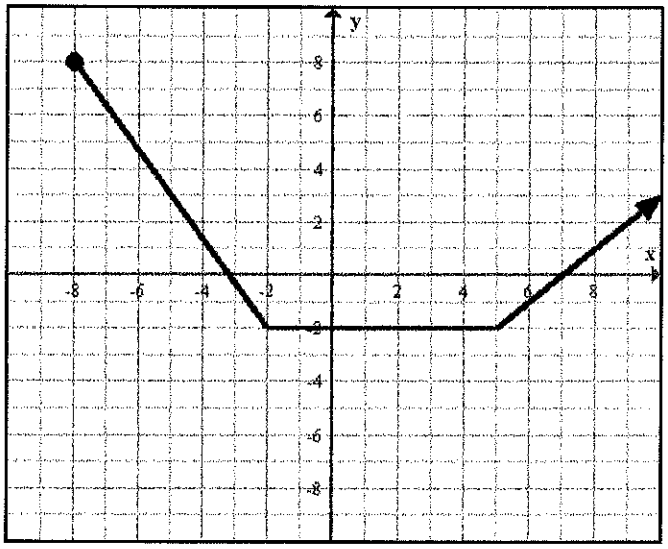
Function:

Yes/No NO

Domain: $[-9, 9]$

Range: $[-2, 5) \cup [7]$

19.



Function:

Yes/No yes

Domain: $[-8, \infty)$

Range: $[-2, \infty)$