

ALGEBRA CHAPTER 4 Review

NAME \_\_\_\_\_

$$[5 \div 4(2(5-4))]$$

Vocabulary: Study your vocabulary foldable as well as know the following words - domain, range, inverse, functions, arithmetic sequence.

Given:  $f(x) = -2x + 5$   
 $g(x) = x^2 - 4x + 1 = 1^2 - 4(1) + 1 = -2$

Find:  $f(3)$   $g(4)$   $f(g(1)) = f(-2) = -2(-2) + 5 = 9$   
 $f(5)$   $g(0)$   $g(f(1)) = g(3) = -2$   
 $f(9)$   $g(-2)$   
 $f(-2)$

See work

List Domain, Range and Inverse

$$(18, -2) (14, -1)$$

#1:  $\{(-2, 18) (-1, 14) (0, 10) (2, 2) (4, -6)\}$

#2:  $\{(-2, -2) (-4, -6) (-5, -5) (-3, -1) (4, 2)\}$

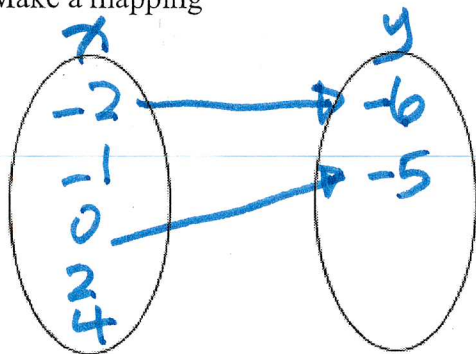
See work

For the equation:  $\frac{1}{2}x - y = 5$  and Given the domain  $\{-2, -1, 0, 2, 4\}$ :

Find the range  $\{-6, -5, \dots\}$

List the ordered pairs  $\{(-2, -6) (-1, -5) (0, -5) (2, -5) (4, -5)\}$

Make a mapping



$$x = -2$$

$$\frac{1}{2}(-2) - y = 5$$

$$-1 - y = 5$$

$$-y = 6$$

$$y = -6$$

See work

# Ch4 review $Ax + By = C$

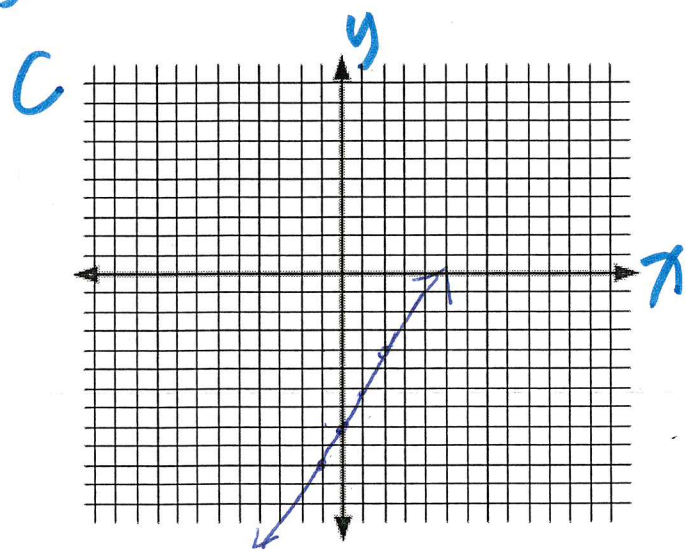
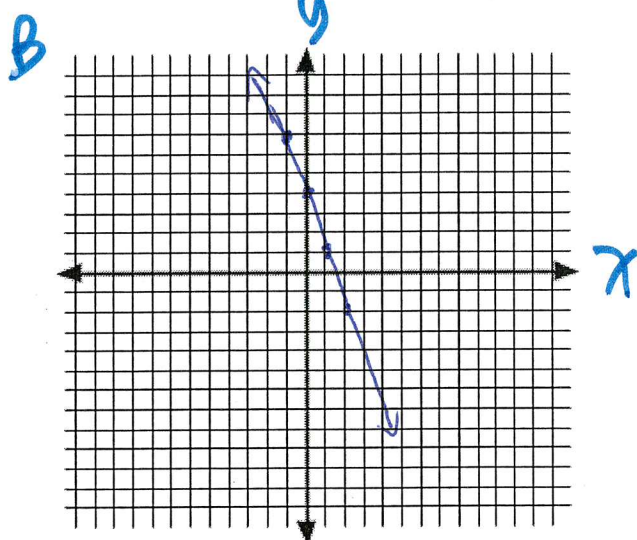
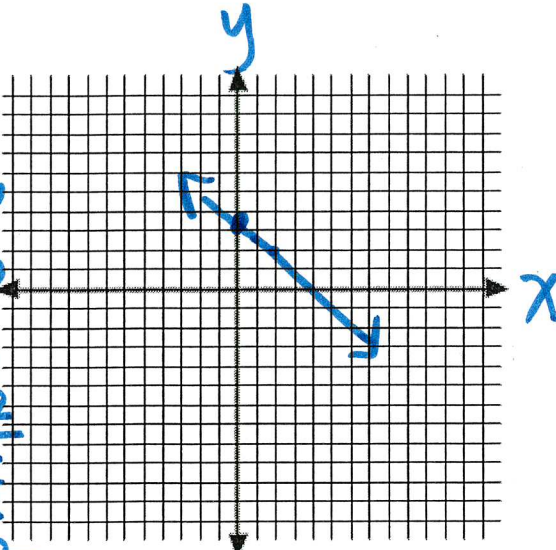
Graph each equation. Label your axis correctly (4 points). Also circle the equation that is in standard form (3 points).

- A.  $x + 2y = 6$       B.  $y + 3x = 4$   
 C.  $y = 2x - 8$       D.  $y = -\frac{3}{2}x + 9$

Please see work paper on how I get my points.

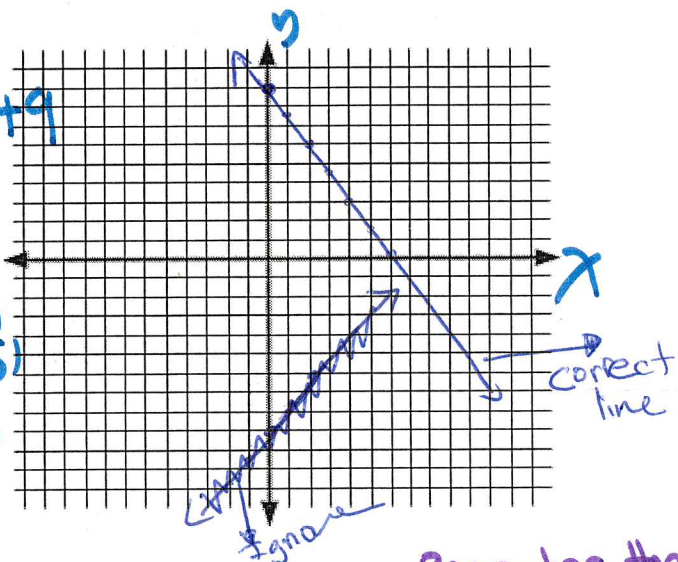
(x,y)  
 $x \mid y$   
 $(0 \mid 3)$   
 $(1 \mid 2.5)$   
 $(2 \mid 2)$

A  
 $0 + 2y = 6$   
 $1 + 2y = 6$   
 $2 + 2y = 6$   
 $-2 \quad -2$   
 $\frac{2y}{2} = \frac{4}{2}$   
 $y = 2$



D  
 $y = -\frac{3}{2}x + 9$

$x \mid y$   
 $(0 \mid 9)$   
 $(1 \mid 7.5)$   
 $(2 \mid 6)$



Complete the table **and** find an equation for the given relation.

x	1	2	3	4	5	6	7
y	3	5	7	9	11	13	15

$+2 \quad +2 \quad +2$

$y = 2x + 1$

Remember the 3 steps.

Below: List the next three terms of each sequence. Circle the letter of the arithmetic sequence **and** give the 50<sup>th</sup> term of that sequence.

A. 1, 4, 9, 16, 25, ... 36, 49, 64

B. 16, 24, 32, 40, ... 48, 56, 64

C. 99, 87, 76, 65, ... 54, 43, 32

$a_{50} = 16 + (50 - 1)8$   
 $= 16 + 392$   
 $= 408$

$\frac{49}{78}$   
 $\frac{392}{16}$   
 $\frac{8}{8}$

## Chapter 4 Review Key

### Vocabulary:

Domain -  $\{x\text{-values, written in least to greatest order, no repeat}\}$

Range -  $\{y\text{-values; same idea}\}$

functions -  $f(x) = x + 6$  is a function  
Same as  $y = x + 6$ .

arithmetic sequence -  $+/-$  the same #  
to obtain the pattern

Given  $f(x) = -2x + 5$        $g(x) = x^2 - 4x + 1$

$$\left. \begin{aligned} f(3) &= -2(3) + 5 \\ &= -6 + 5 \\ f(3) &= \boxed{-1} \end{aligned} \right\} \left. \begin{aligned} f(5) &= -2(5) + 5 \\ &= -10 + 5 \\ &= \boxed{-5} \end{aligned} \right\} \left. \begin{aligned} f(9) &= -2(9) + 5 \\ &= \boxed{-13} \end{aligned} \right\}$$

$$\left. \begin{aligned} f(-2) &= -2(-2) + 5 \\ &= \boxed{9} \end{aligned} \right\} \left. \begin{aligned} g(4) &= 4^2 - 4(4) + 1 \\ &= 16 - 16 + 1 \\ &= \boxed{1} \end{aligned} \right\} \left. \begin{aligned} g(0) &= 0^2 - 4(0) + 1 \\ &= \boxed{1} \end{aligned} \right\}$$

$$\left. \begin{aligned} g(-2) &= (-2)^2 - 4(-2) + 1 \\ &= 4 + 8 + 1 \\ &= \boxed{13} \end{aligned} \right\} \left. \begin{aligned} f(g(1)) &= f(-2) = -2(-2) + 5 \\ &= \boxed{9} \\ g(1) &= 1^2 - 4(1) + 1 \\ &= -2 \end{aligned} \right\}$$

$$g(f(1)) = g(+3) = (+3)^2 - 4(+3) + 1$$
$$= 9 - 12 + 1$$

$$f(1) = -2(1) + 5 = +3$$
$$= \boxed{-2}$$

## Domain, Range, Inverse

#1) Domain  $\{-2, -1, 0, 2, 4\}$   
Range  $\{-6, -2, 10, 14, 18\}$   
Inverse  $\{(18, -2), (14, -1), (10, 0), (2, 2), (-6, 4)\}$

#2) Domain  $\{-5, -4, -3, -2, 4\}$   
Range  $\{-6, -5, -2, -1, 2\}$   
Inverse  $\{(-2, -2), (-6, -4), (-5, -5), (-1, -3), (2, 4)\}$

For equation  $\frac{1}{2}x - y = 5$  domain  $(-2, -1, 0, 2, 4)$

Find range

$$x = -2 : \frac{1}{2}(-2) - y = 5$$

$$y = -6 \quad \begin{array}{r} -1 - y = 5 \\ +1 \quad +1 \end{array}$$

$$-y = 6 \Rightarrow y = -6$$

$$x = -1 : \frac{1}{2}(-1) - y = 5$$

$$y = -5.5$$

$$\begin{array}{r} -.5 - y = 5 \\ +.5 \quad +.5 \end{array}$$

$$-y = 5.5$$

$$y = -5.5$$

$$x = 0 : \frac{1}{2}(0) - y = 5$$

$$y = -5$$

$$\begin{array}{r} -y = 5 \\ y = -5 \end{array}$$

$$x = 2 : \frac{1}{2}(2) - y = 5$$

$$y = -4$$

$$\begin{array}{r} 1 - y = 5 \\ -1 \quad -1 \end{array}$$

$$-y = 4$$

$$y = -4$$

$$x = 4$$

$$y = -3$$

$$\frac{1}{2}(4) - y = 5$$

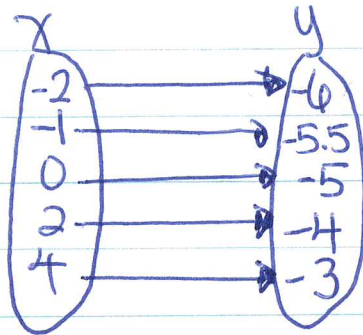
$$2 - y = 5$$

$$-y = 3$$

$$y = -3$$

range  $\{-6, -5.5, -5, -4, -3\}$

# Mapping



# Graphing

A.  $x + 2y = 6$

$$\begin{array}{r} -1 + 2y = 6 \\ +1 \quad \quad +1 \\ \hline 2y = 7 \\ \frac{2y}{2} = \frac{7}{2} \end{array}$$

$$y = 3.5$$

$$\begin{array}{l} 0 + 2y = 6 \\ 2y = 6 \end{array}$$

$$\begin{array}{r} 1 + 2y = 6 \\ -1 \quad \quad -1 \\ \hline 2y = 5 \\ y = 2.5 \end{array}$$

x	y
-1	3.5
0	3
1	2.5
2	2

Graph these points

$$\begin{array}{r} 2 + 2y = 6 \\ -2 \quad \quad -2 \\ \hline 2y = 4 \end{array}$$

B)  $y + 3x = 4$

$$y + 3(-1) = 4 \Rightarrow \begin{array}{r} y - 3 = 4 \\ +3 \quad +3 \\ \hline y = 7 \end{array}$$

$$x=0 \quad y + 3(0) = 4 \Rightarrow \boxed{y=4}$$

$$x=1 \quad \begin{array}{l} y + 3(1) = 4 \\ y + 3 = 4 \\ -3 \quad -3 \\ \hline y = 1 \end{array}$$

$$x=2 : \begin{array}{l} y + 3(2) = 4 \\ y + 6 = 4 \\ -6 \quad -6 \\ \hline y = -2 \end{array}$$

x	y
-1	7
0	4
1	1
2	-2

Graph

c)  $y = 2x - 8$

$x = -1$ :  $y = 2(-1) - 8$   
 $= -2 - 8$   
 $= -10$

$x = 0$ :  $y = 2(0) - 8$   
 $= 0 - 8$   
 $= -8$

$x = 1$ :  $y = 2(1) - 8$   
 $= 2 - 8$   
 $= -6$

$x = 2$ :  $y = 2(2) - 8$   
 $= 4 - 8$   
 $= -4$

x	y
-1	-10
0	-8
1	-6
2	-4

Graph

d)  $y = -\frac{3}{2}x + 9$

$x = -1$ :  $y = -1.5(-1) + 9$   
 $= 1.5 + 9$   
 $= 10.5$

$x = 0$ :  $y = -1.5(0) + 9$   
 $= 9$

$x = 1$ :  $y = -1.5(1) + 9$   
 $= -1.5 + 9$   
 $= 7.5$

$x = 2$ :  $y = -1.5(2) + 9$   
 $= -3 + 9$   
 $= 6$

x	y
-1	10.5
0	9
1	7.5
2	6

Graph