

Semester 1 Exam Review

Solve each equation for the indicated variable.

1)  $u = a - k$ , for  $a$

2)  $z = ma$ , for  $a$

3)  $\frac{k}{x} = w - v$ , for  $x$

4)  $x - c = r + d$ , for  $x$

5)  $am = n + p$ , for  $a$

6)  $m - x = y(n - p)$ , for  $x$

7)  $ma = \frac{np}{b}$ , for  $a$

8)  $z = \frac{map + n}{p}$ , for  $a$

9)  $x + m = \frac{y}{p + n}$ , for  $x$

10)  $\frac{a}{m} = \frac{p}{nb}$ , for  $a$

**Solve each equation.**

11)  $-3 - 8x + 3 = 0$

12)  $-5 - 6(4p + 2) = -185$

13)  $63 = 7(6 - 5m) + 7(5m + 3)$

14)  $4x - 3 = -7 + 4x$

15)  $-3(-4 - 7x) = -2x + 12$

16)  $-5(-2r - 2) = -2(7 - 8r)$

$$17) 4(p + 4) + 8 = 41 + 4p$$

$$18) 8k - 5k = -5(1 - 4k) + 8(k + 10)$$

$$19) 10(1 + 7k) = 10k - 10(k + 6)$$

$$20) -2n - 10 = -2(n + 5)$$

- 21) The school that Matt goes to is selling tickets to a play. Senior citizen tickets cost \$5 and student tickets cost \$10. If the school took in \$185 on the first day of selling tickets and 5 more student tickets were sold than senior citizen tickets, how many of each type of ticket did the school sell?

~~22) Emily's school is selling tickets to the annual talent show. On the first day of ticket sales the school made \$144 by selling tickets to adults and children. If they sold 2 less child tickets than adult tickets, what is the cost of each?~~

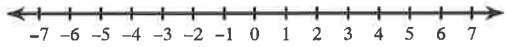
**SKIP!**

23) Maria and Abhasra are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of oatmeal cookie dough. Maria sold 10 packages of chocolate chip cookie dough and 10 packages of oatmeal cookie dough for a total of \$230. If chocolate chip cookie dough costs \$13 less than the cost of oatmeal cookie dough, determine the cost of each different kind.

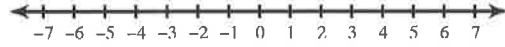
24) Kayla improved her yard by planting rose bushes and geraniums. She spent \$35 on 4 rose bushes and 5 geraniums. If the cost of a rose bush is \$2 more than the cost of geraniums, determine the cost of each rose bush and geranium?

Draw a graph for each inequality.

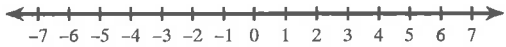
25)  $p < -2$



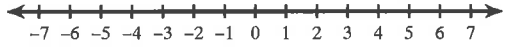
26)  $-5 \geq n$



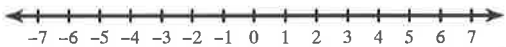
27)  $p < -1$



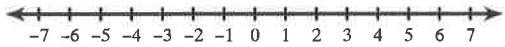
28)  $-4 \leq p$



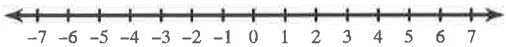
29)  $2 > n$



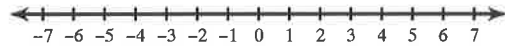
30)  $-6 \leq k$



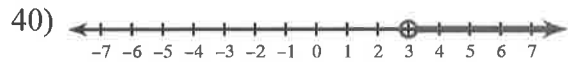
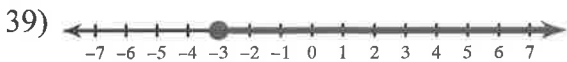
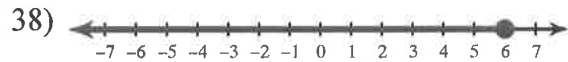
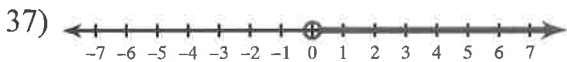
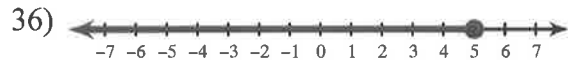
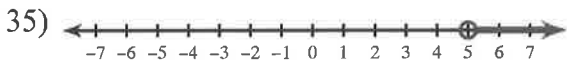
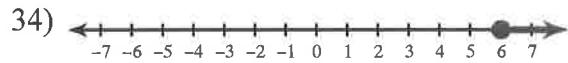
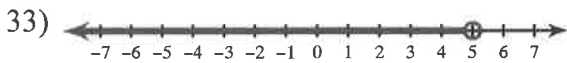
31)  $x \leq -6$



32)  $x \leq -3$

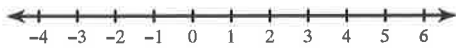


Write an inequality for each graph.

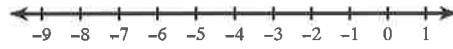


Solve each inequality and graph its solution.

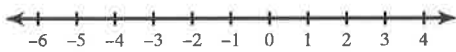
41)  $-r + 6r < -10$



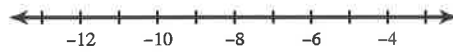
42)  $24 \geq -6k - 2k$



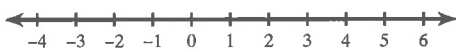
43)  $3(2b - 8) \geq 6b - 28$



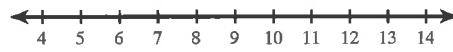
44)  $7n - 4(-6n - 4) > -201$



45)  $7(x + 5) + 6(-4x + 6) \geq 20$

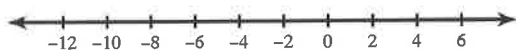


46)  $-13 > -5(1 + 2n) + 2(5n - 4)$

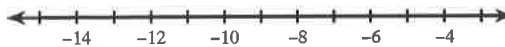


Solve each compound inequality and graph its solution.

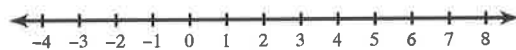
47)  $p - 7 > -4$  or  $\frac{p}{4} \leq -2$



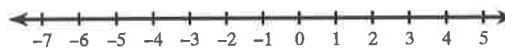
48)  $x + 9 < 3$  and  $\frac{x}{10} > -1$



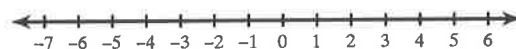
49)  $9 + 3n < 18$  or  $3 + 8n \geq 35$



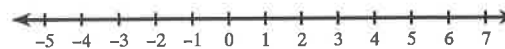
50)  $64 < -7k - 6 < 36$



51)  $m + 6 < 8 + 3m$  or  $2m + 7 > -2 + 5m$



52)  $-44 \leq -4 - 8x \leq -4$





Solve each equation.

$$53) |x| = 8$$

$$54) |m| = 3$$

$$55) |p - 1| = 7$$

$$56) |-8n| = 32$$

$$57) |k + 1| = 3$$

$$58) |x - 6| = -4$$

$$59) -3|x + 7| = -36$$

$$60) -6 + |x - 8| = -3$$

$$61) \frac{|7v - 9|}{10} = 1$$

$$62) |10 - 2k| + 1 = 19$$

$$63) -3 + |6 + n| = 3$$

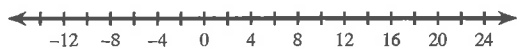
$$64) 1 + 9|1 - 8x| = 64$$

$$65) 7 - 6|5 - 9x| = 31$$

$$66) 2|1 + 10x| + 10 = 48$$

Solve each inequality and graph its solution.

$$67) |x - 5| \geq 15$$



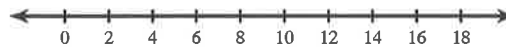
$$68) \left| \frac{x}{6} \right| \leq 3$$



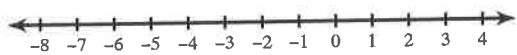
$$69) |x - 4| < 7$$



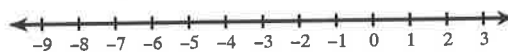
$$70) |n - 8| > 6$$



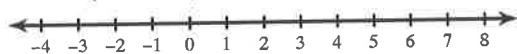
$$71) 7|2 - 8x| > 70$$



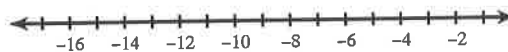
$$72) \frac{|10a - 4|}{2} < 5$$



$$73) -9|8 - 5b| - 9 \geq -72$$



$$74) 8|-r - 9| - 4 \geq 20$$



**Evaluate each function.**

$$75) k(n) = n - 4; \text{ Find } k(-1)$$

$$76) f(x) = x^2 + 1; \text{ Find } f(5)$$

77)  $g(x) = x^2 + 3x$ ; Find  $g(-5)$

78)  $g(a) = 3a + 1$ ; Find  $g(-8)$

79)  $w(n) = -3n^2 + 4n$ ; Find  $w(8)$

80)  $g(x) = x^2 + 3x$ ; Find  $g(-1)$

81)  $h(n) = 2n - 1$ ; Find  $h(-9)$

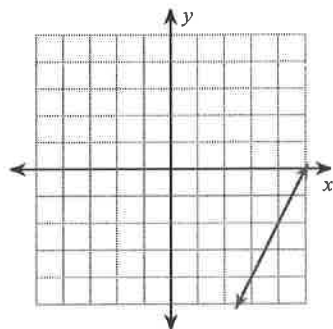
82)  $k(t) = t^2 - 2$ ; Find  $k(-3)$

83)  $w(t) = t^2 + 5t$ ; Find  $w(-1)$

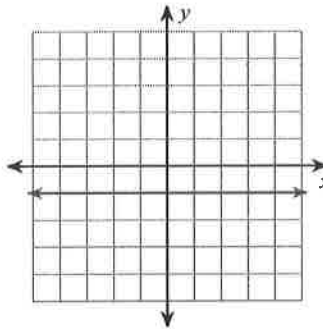
84)  $h(x) = x^2 + 1$ ; Find  $h(10)$

Find the slope of each line.

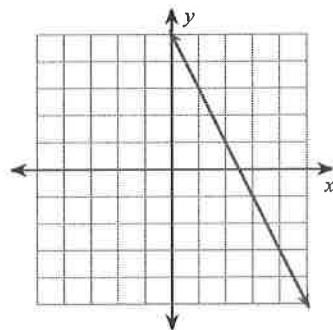
85)



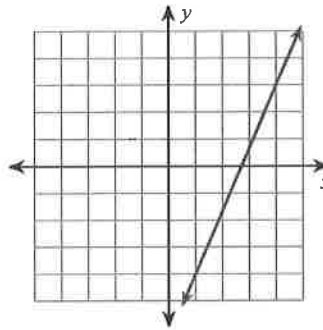
86)



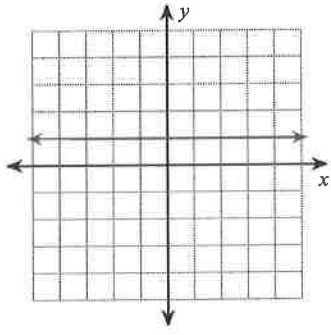
87)



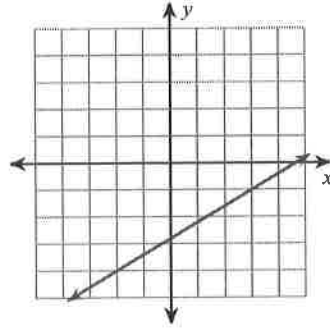
88)



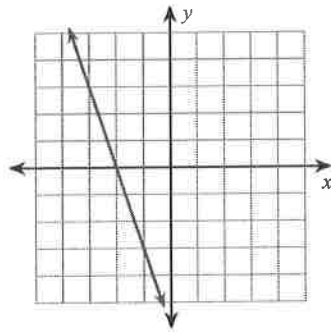
89)



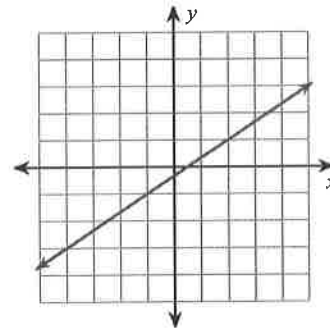
90)



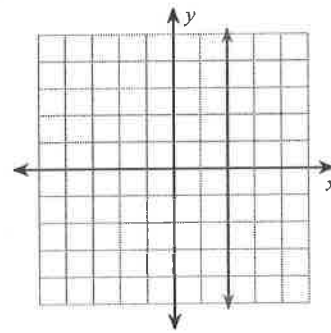
91)



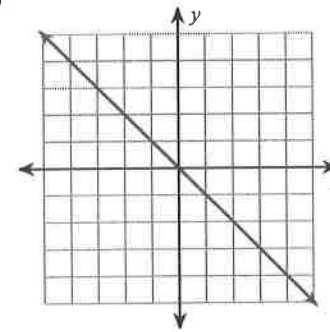
92)



93)



94)



**Find the slope of the line through each pair of points.**

95)  $(-7, 20), (5, 20)$

96)  $(-19, -6), (1, 4)$

97)  $(20, -17), (-12, 19)$

98)  $(18, -15), (18, -8)$

99)  $(4, -10), (7, -18)$

100)  $(-11, -17), (20, -7)$

101)  $(18, -6), (18, -15)$

102)  $(-11, -1), (-15, -1)$

103)  $(4, -7), (-14, -4)$

104)  $(0, -16), (18, 20)$



# What Did Farmer John Show His Chicken When She Wouldn't Lay Any Eggs?



Determine whether each relation is a function. Indicate whether it "is a function" or is "not a function" by circling the appropriate letter in the chart. The answer to the title question is found by reading the circled letters in the top row, then the circled letters in the bottom row.

- 105)  $\{(-1, 8), (0, 15), (1, -4), (2, 0)\}$       106)  $\{(-5, 2), (5, 2), (0, -3), (3, -8), (-7, 4), (-1, -1)\}$   
 107)  $\{(-2, 7), (6, 2), (-2, -3), (0, 9)\}$       108)  $\{(-7, 2), (4, -6), (2, -2), (-3, 9), (0, -11), (4, 0)\}$

109)

x	y
-6	4
-4	0
-2	-5
0	-5
2	0
4	4

110)

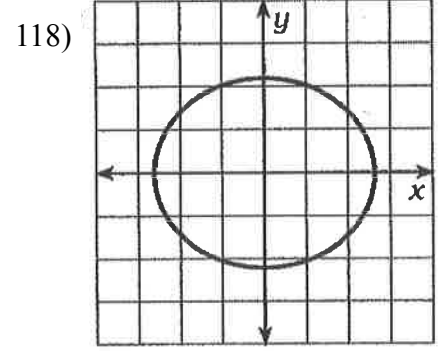
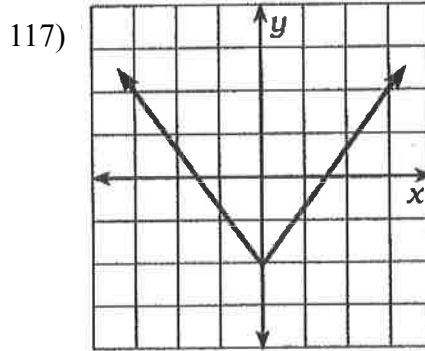
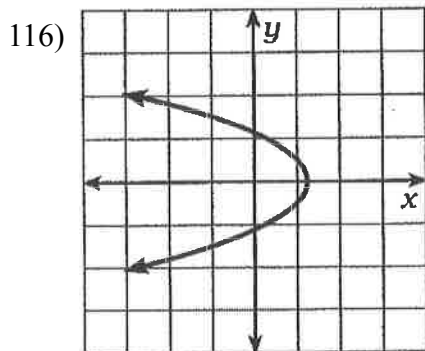
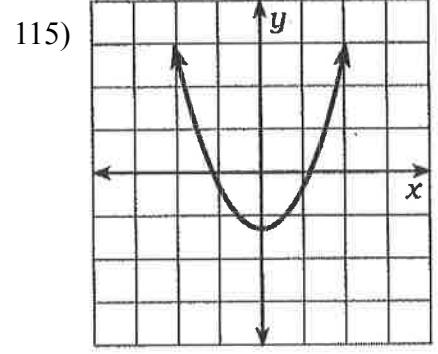
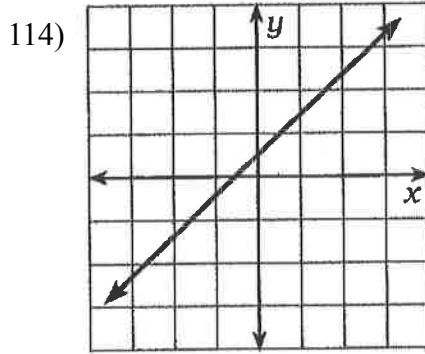
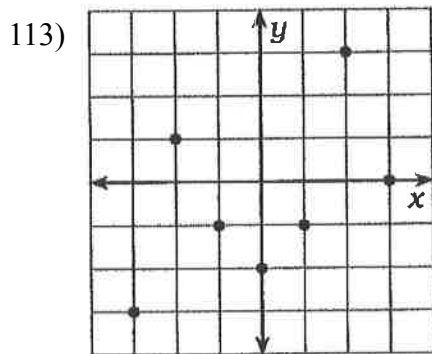
x	y
8	7
-3	16
-9	0
15	33
-1	-1
-9	-6

111)

x	y
5	18
-2	-2
0	12
12	0
-40	17
-5	18

112)

x	y
-1	75
0	80
1	85
0	90
-1	95



**IS A FUNCTION >**  
**NOT A FUNCTION >**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	R	G	E	O	L	O	F	D	E	G	O	G	G
I	S	T	A	T	M	E	P	O	L	A	L	L	E

# Why Did the Greenhouse Call a Doctor?

Answer each question, then find your answer and cross out the letters above it.  
When you finish, write the remaining letters in the spaces at the bottom of the page.

find the domain and range of the relation.

119)

Age (years)	Height (inches)
4	41
8	49
12	58
16	67

120)

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

121)

x	y
-3	4
8	-9
0	-6
-3	7
-5	12

domain: \_\_\_\_\_ domain: \_\_\_\_\_ domain: \_\_\_\_\_  
range: \_\_\_\_\_ range: \_\_\_\_\_ range: \_\_\_\_\_

find the indicated values for the function.

122)  $f(x) = 4x - 7$

a.  $f(3)$       b.  $f(-5)$

123)  $f(x) = -3x + 10$

a.  $f(4)$       b.  $f(-9)$

124)  $g(x) = x^2 + 5x - 1$

a.  $g(6)$       b.  $g(-4)$

125)  $h(x) = -2x^2 - 3x + 8$

a.  $h(5)$       b.  $h(0)$

find the range of the function for the given domain.

126)  $f(x) = 2x + 7$        $\{5, 18, -5\}$

127)  $g(x) = 9 - 4x$        $\{-2, 10, -1\}$

128)  $F(x) = 3x^2 - 1$        $\{2, 4, -3\}$

129)  $h(x) = x^2 + 8x - 3$        $\{1, 5, -2\}$

130)  $f(t) = \frac{t^2 + 2t}{t - 5}$        $\{4, 7, -2\}$

131)  $G(n) = -n^2 + 3n + 2$        $\{5, -3, 0\}$

TH $\{-2, -1, 0, 1, 2\}$	HE 8	IT $\{11, 62, 0\}$	AT -5	IS $\{17, 43, -3\}$	HA -6	RD $\{-3, 8, 0, -5\}$
SO $\{4, -9, -6, 7, 12\}$	DW 19	HE $\{-8, -16, 2\}$	ME 5	LP $\{11, 47, 26\}$	TH -2	IN $\{4, -9, -6, 0, -5\}$
TO $\{4, 8, 12, 16\}$	DO -18	SA $\{7, 4, 2\}$	VE -57	WP $\{6, 47, 2\}$	UN 65	IT $\{-24, 31.5, 0\}$
AI $\{-3, 8, 7, 12\}$	RS -27	SI $\{17, -31, 13\}$	DE 37	CK $\{6, 62, -15\}$	NS 74	UP $\{41, 49, 58, 67\}$

\_\_\_\_\_

# What Did the Baby Porcupine Say When It Backed Into a Cactus?



Determine which of the relations below are functions. Find the number of each relation that is a function at the bottom of the page and cross out the letter below it. When you finish, the answer to the title question will remain.

132)  $\{(-2, 7), (-1, 5), (0, 3), (1, 1), (2, 1)\}$

133)  $\{(-7, 20), (3, 5), (0, 5), (-2, 0), (6, -4), (-6, -9), (4, 4)\}$

134)  $\{(4, 8), (-3, -2), (9, 6), (2, -1), (-4, -5), (2, 7), (-8, 0)\}$

135)

x	y
0	-19
1	-12
2	-4
3	3
4	13
5	27

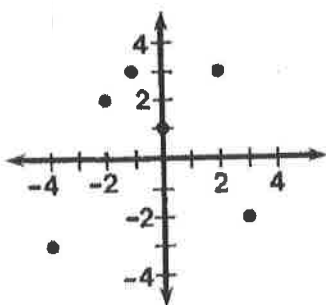
136)

x	y
-5	8
-3	8
-1	-2
1	-2
3	11
5	23

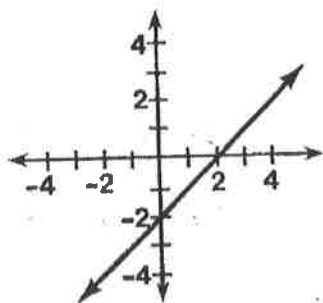
137)

x	y
-2	-7
-2	5
0	-16
2	0
2	6

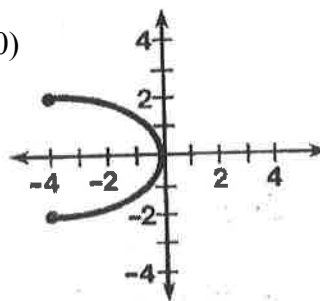
138)



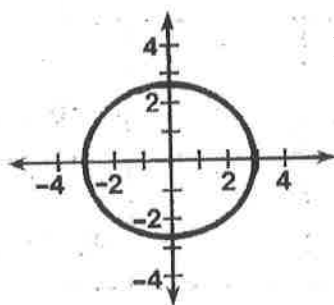
139)



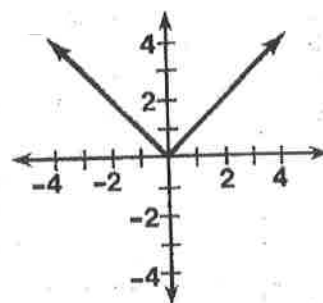
140)



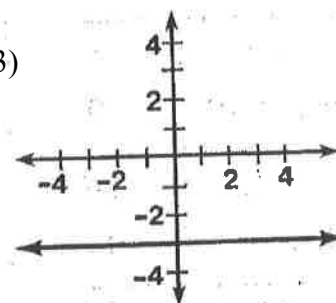
141)



142)



143)

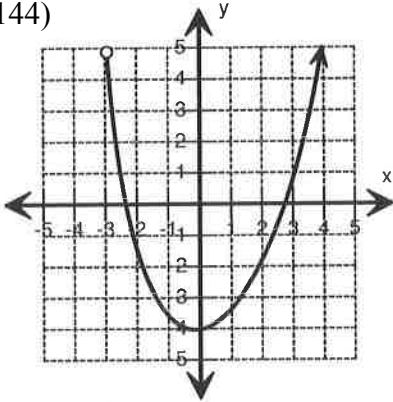


5	12	10	7	1	3	9	11	2	4	6	8
F	O	H	A	S	I	M	T	O	P	A	D

Domain and Range

Find the Domain and Range for each graph.

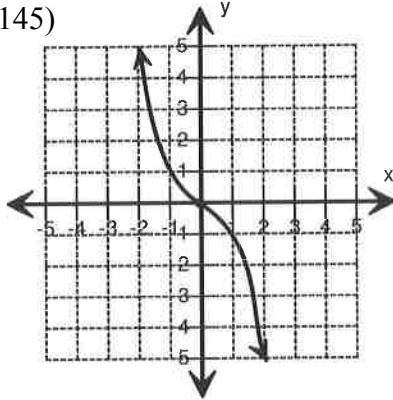
144)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

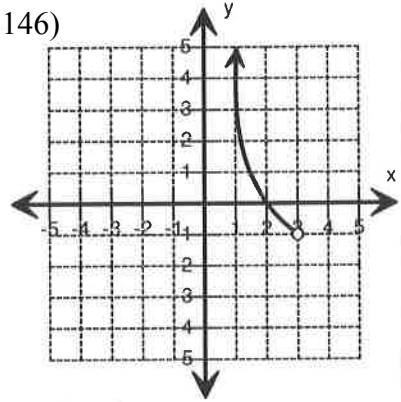
145)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

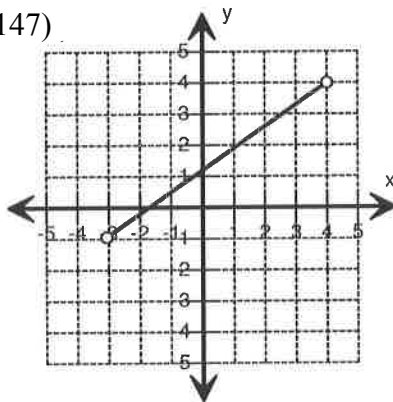
146)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

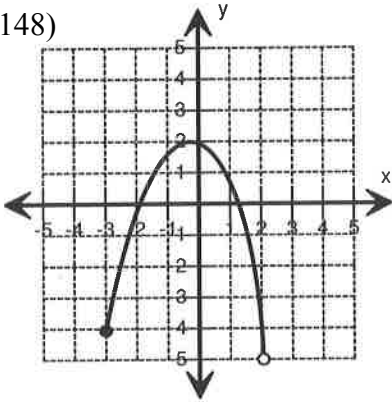
147)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

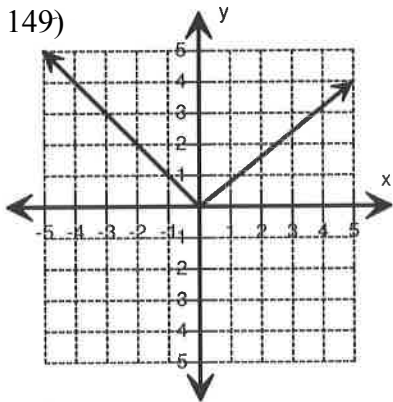
148)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

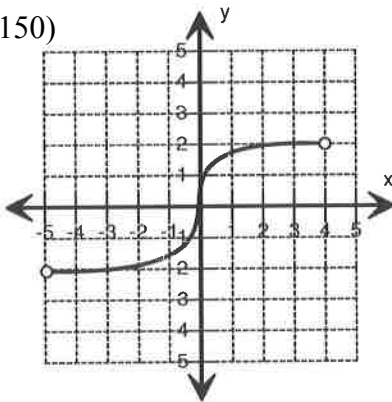
149)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

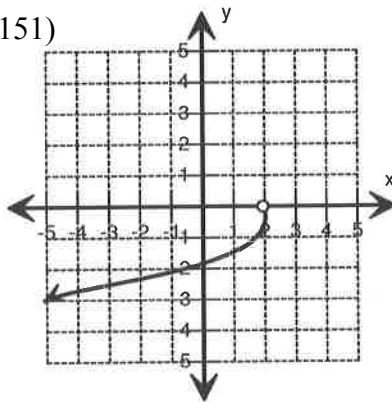
150)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

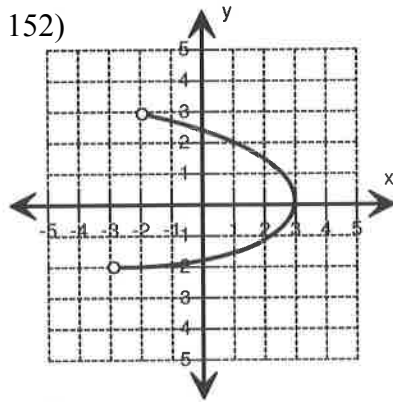
151)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

152)



Domain : \_\_\_\_\_

Range : \_\_\_\_\_

In Items 153 – 160, identify the transformation from the graph of  $f(x) = x^2$  to the graph of  $g(x)$ .

153) $g(x) = x^2 - 7$	154) $g(x) = (x + 1)^2$
155) $g(x) = x^2 + 12$	156) $g(x) = (x - 3.2)^2$
157) $g(x) = (x + 4.1)^2 - \frac{3}{2}$	158) $g(x) = (x - 2)^2 - \frac{11}{3}$
159) $g(x) = (x + 1.78)^2 + 5$	160) $g(x) = (x - 6)^2 + 9.34$

For Items 161 – 170, write the equation  $g(x)$  of the function described by each of the following transformations of the graph of  $f(x) = \frac{1}{x}$ .

- 161) Translated 3.7 units to the left of  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 162) Translated 8 units up from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 163) Translated 5 units right, and 0.5 units up from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 164) Translated 11 units right of  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 165) Translated 1.75 units down, and 7 units to the left of  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.

- 166) Translated 15 units down from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 167) Translated 13 units right, and 7.77 units down from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 168) Translated up 8.5 units, and 10 units left from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 169) Translated down 17 units, and  $\frac{4}{3}$  units left from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.
- 170) Translated up  $\frac{13}{4}$  units, and 6.4 units right from  $f(x)$ .
- Write the function notation equation.
  - Write the substitution notation equation.