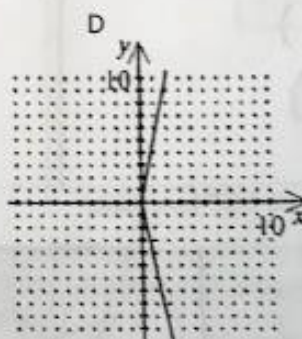
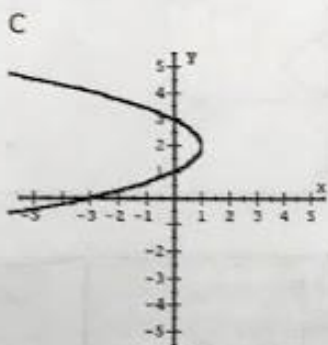
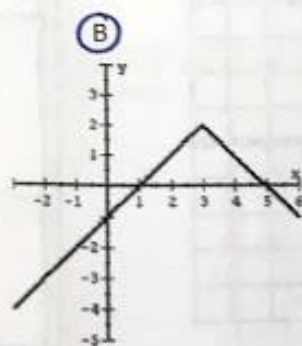
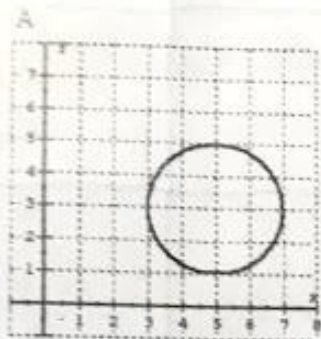


Algebra 1 – Unit 3 Study Packet

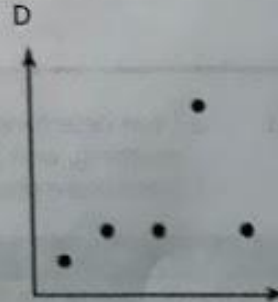
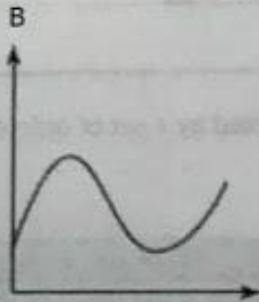
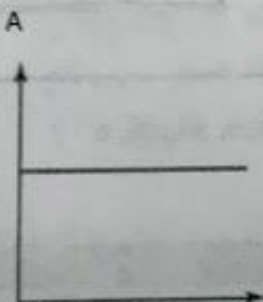
Functions

Skill #1 – Identifying Functions

1. Which graph represents a function?



2. Which of the following is NOT a function of x ?



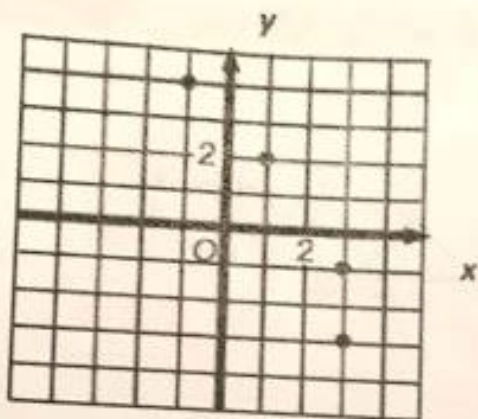
3. Which of the following sets of ordered pairs is a function?

- A $\{(1,2); (2,5); (2,7); (9,11)\}$
- B $\{(-5,-1); (-3,8); (-5,-1); (-3,9)\}$
- C $\{(4,1); (-9,1); (-8,1); (6,1)\}$
- D $\{(6,4); (5,10); (8,-4); (6,-4)\}$

4. Which of following sets of ordered pairs is NOT a function?

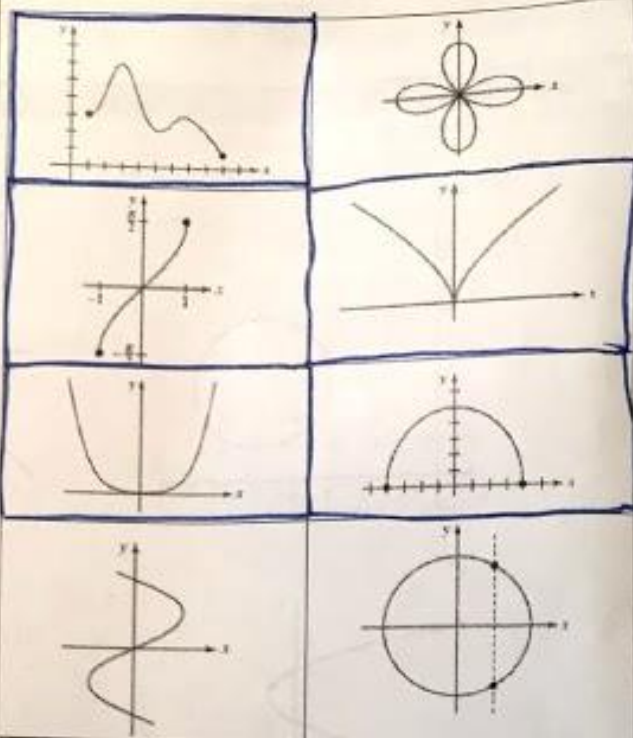
- A $\{(7,2); (7,2); (-1,-6); (-10,-15)\}$
- B $\{(-1,-1); (-3,9); (-1,0); (-7,6)\}$
- C $\{(4,0); (9,0); (5,0); (3,0)\}$
- D $\{(3,7); (8,11); (11,8); (4,-7)\}$

5. Look at the graph of ordered pairs. Identify one of the graphed ordered pairs that make this relation NOT a function.

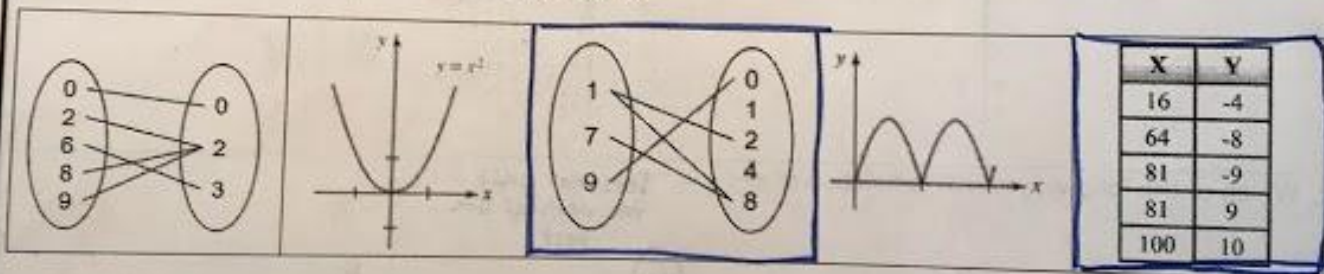


$(3, -1)$
- OR - $(3, -3)$

6. Select all of the following that are functions.



7. Select all of the following that are NOT functions.



Skill #1 I can determine whether a relation, represented by a set of ordered pairs, a table, a mapping, or a graph is a function.
 Need more practice (IXL - Q.4, Q.5)

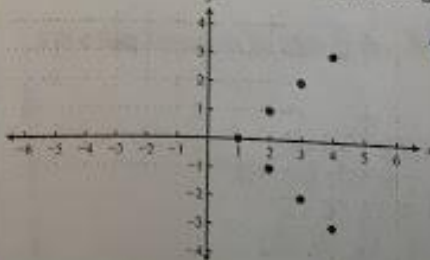
Skill #2 - Domain and Range

1. What is the domain of the following function?



$\{-2, -1, 0, 1, 2\}$

2. What is the range of the following function?



$\{-3, -2, -1, 0, 1, 2, 3\}$

3. What is the domain of the following function?

$$\{(-9,1); (-8,2); (-4,8); (1,21)\}$$

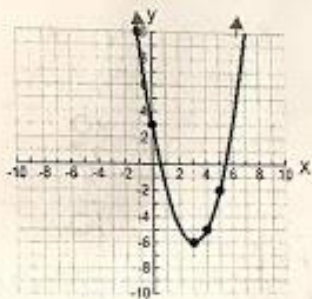
$$\{-9, -8, -4, 1\}$$

4. What is the range of the following function?

$$\{(7,-1); (8,2); (4,15); (16,23)\}$$

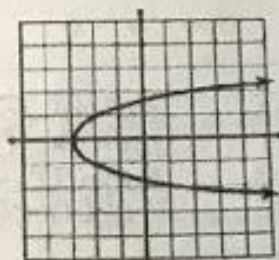
$$\{-1, 2, 15, 23\}$$

5. Look at the graph of a function. Complete the statement.



$$\{y: y \geq -6\}$$

6. Look at the graph of a function. Complete the statement.



$$\{x: x \geq 3\}$$

Skill #2

I can identify the domain and range presented algebraically or graphically.

Need more practice (IXL - Q.2 or <https://www.khanacademy.org/math/algebra/algebra-functions/domain-and-range/e/domain-and-range-0.5>)

Skill #3 - Evaluating Functions with Function Notation

1. What is the range of the function $f(x) = x^2 + x - 2$ if the domain is $\{1, 2, 3\}$?

$$1^2 + 1 - 2 = 0$$

$$2^2 + 2 - 2 = 4$$

$$3^2 + 3 - 2 = 10$$

A $\{0, 4, 10\}$

C $\{0, 4, 7\}$

B $\{0, 3, 8\}$

D $\{0, 3, 10\}$

2. What is the range of the function $f(x) = -2x + 5$ if the domain is $\{-2, 0, 2\}$?

$$-2(-2) + 5 = 4 + 5 = 9$$

$$-2(0) + 5 = 5$$

$$-2(2) + 5 = 1$$

A $\{9, 5, 0\}$

C $\{-9, 5, 1\}$

B $\{9, 5, 1\}$

D $\{1, 5, 0\}$

3. If $f(x) = 4x^3$ what is $f(1)$ and $f(-1)$?

$$4(1)^3$$

$$4(1)$$

$$4$$

$$4(-1)^3$$

$$4(-1)$$

$$-4$$

A 4 and 4

C 1 and -1

B 4 and -4

D 12 and -4

4. If $f(x) = (x - 1)^2 + 5x$ what is $f(3)$?

$$(3 - 1)^2 + 5(3)$$

$$2^2 + 5(3)$$

$$4 + 15 = 19$$

5. If $f(x) = |4x - 1|$ what is $f(-2)$?

$$\begin{aligned} &|4(-2) - 1| \\ &|-8 - 1| \\ &|-9| = \textcircled{9} \end{aligned}$$

6. If $f(x) = \frac{1}{2}x$ what is $f(4)$?

$$\frac{1}{2}(4) = \textcircled{2}$$

7. Complete the table for the function.

$$f(x) = 2x^3 - x^2$$

x	f(x)
0	$2(0)^3 - (0)^2 = \textcircled{0}$
1	$2(1)^3 - (1)^2 = \textcircled{1}$
-2	$2(-2)^3 - (-2)^2 = -16 - 4 = \textcircled{-20}$
-1	$2(-1)^3 - (-1)^2 = -2 - 1 = \textcircled{-3}$

8. Complete the table for the function.

$$f(x) = 2(x+1)^2 + 2x$$

x	f(x)
-4	10
2	22
0	2
1	10

$$\begin{aligned} &2(-4+1)^2 + 2(-4) \\ &2(2+1)^2 + 2(2) \\ &2(0+1)^2 + 2(0) \end{aligned} \quad \begin{aligned} &2(1+1)^2 + 2(1) \end{aligned}$$

9. If $f(4) = 1$ then which could be the equation for $f(x)$?

A $x^2 - x + 3$
 $4^2 - 4 + 3 = 15$

B $x^2 - x - 12$
 $4^2 - 4 - 12 = 0$

C $x^2 + x + 1 = 21$
 $4^2 + 4 + 1 = 21$

D $x^2 - x - 11 = 1$
 $4^2 - 4 - 11 = 1$

9. If $f(-1) = 5$ then which could be the equation for $f(x)$?

A $3x - 5$
 $3(-1) - 5 = -8$

B $-4x + 1$
 $-4(-1) + 1 = 5$

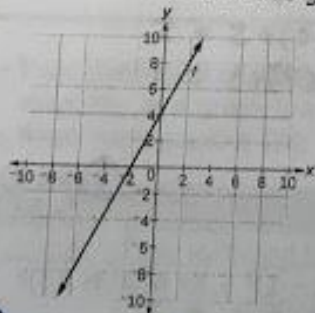
C $5x + 0$
 $5(-1) + 0 = -5$

D $-9x - 3$
 $-9(-1) - 3 = 6$

Skill #3 I can evaluate $f(x)$ for the domain for any value of x .
 Need more practice (IXL - Q.7, Q.8, Q.10)

Skill #4 - Function Representations

1. Identify the table that created this graph.



X

x	y
0	4
-4	-2
-8	-6
-9	-9

B

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

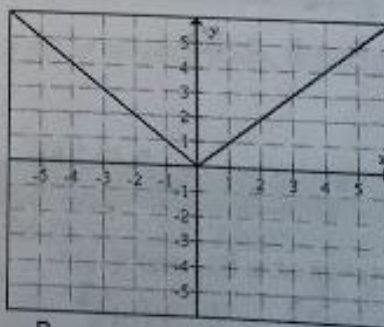
X

x	y
-2	0
-1	-1
0	-2
1	-3

X

x	y
-8	4
-4	3
0	2
4	1

2. Identify the table that created this graph.



A

x	y
0	0
1	1
-1	1
-2	2

B

x	y
0	0
1	1
2	3
-3	4

C

x	y
0	0
1	1
5	6
7	8

D

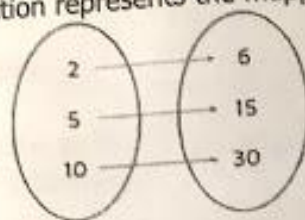
x	y
0	0
-2	-2
1	1
-3	-3

3. Which function represents the ordered pairs?

$\{(-3,11); (-2,7); (-1,3); (0,-1)\}$

- A $4 - x$
- B $3x + 2$
- C $-4x - 1$
- D $x + 4$

4. Which function represents the mapping?



- A $x + 4$
- B $3x$
- C $2x + 2$
- D $4x - 2$

5. Select three representations that refer to the same function.

x	f(x)
-1	-4
0	-1
1	2
2	5

$$f(x) = 1 - 2x$$

One less than the product of three and a number

One less than the product of two and a number

x	f(x)
-1	4
0	5
1	6
2	7

$$f(x) = 3x - 1$$

Skill #4

- I can represent relations and functions using verbal descriptions, tables, equations, and graphs. Given one representation, I can represent the relations in other forms.
- Need more practice (IXL - Q.1)