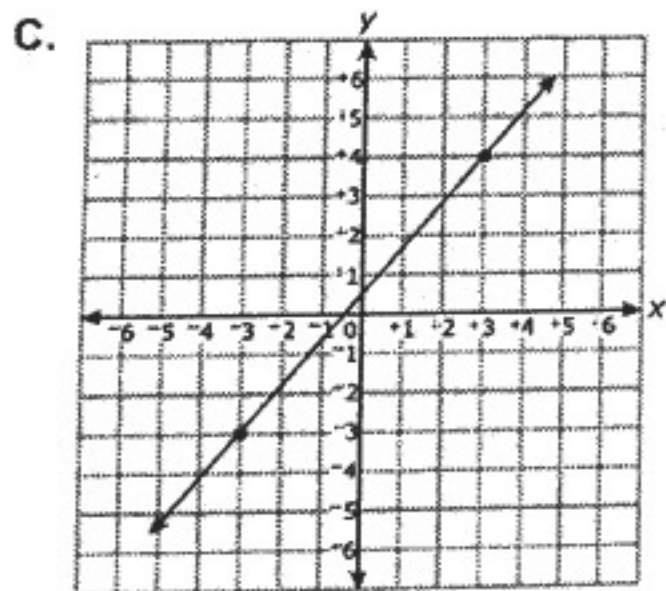
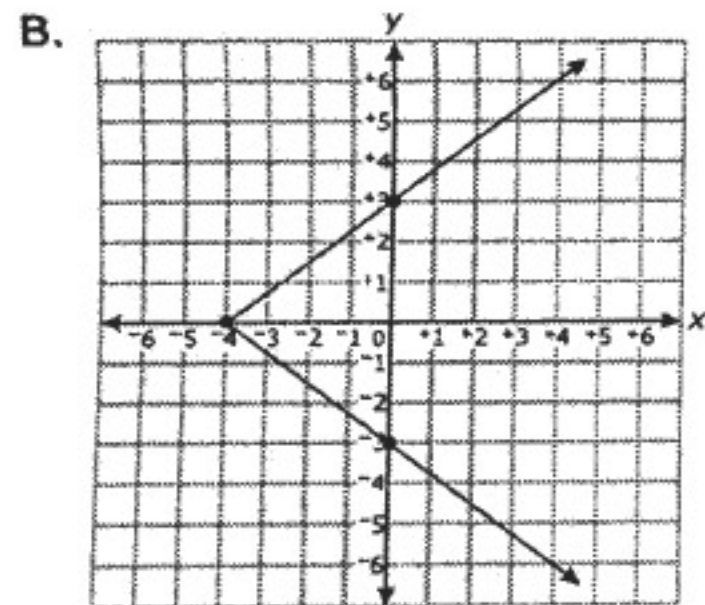
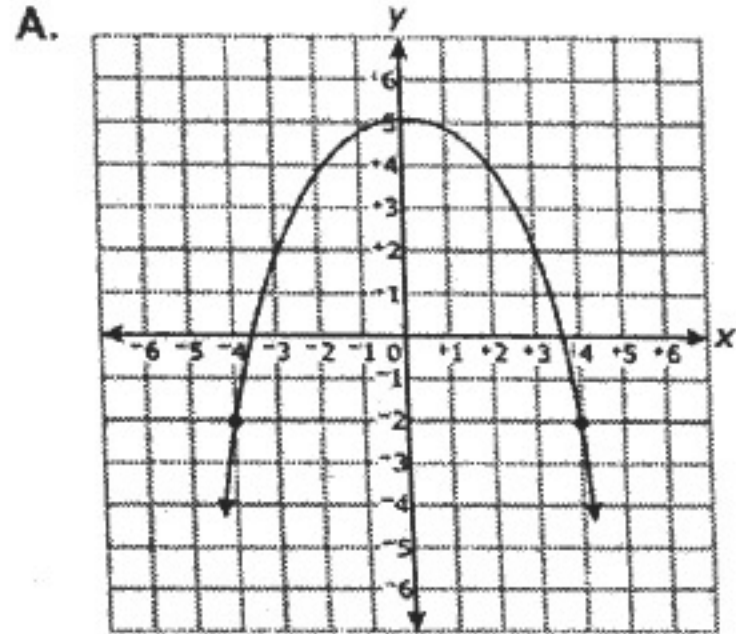


Function Study Guide

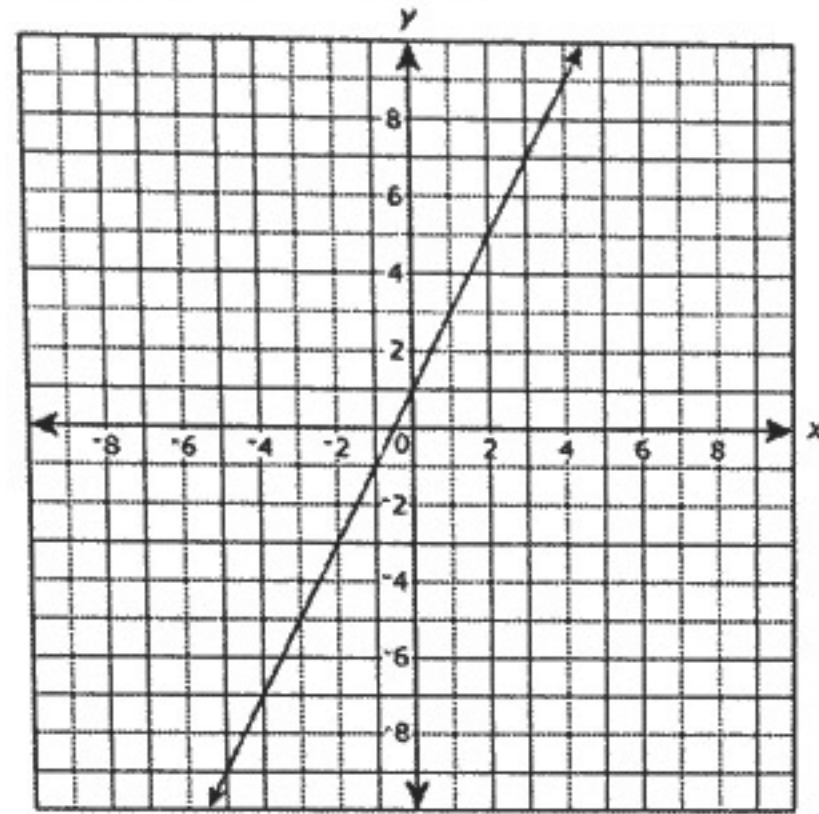
Student _____

Date _____

1. In which graph is y *not* a function of x ?



2. A linear function is graphed on the coordinate plane below.



Which output value is associated with the input value of 4?

- A. 1
- B. 1.5
- C. 2
- D. 9

3. The table below shows a linear relationship between x and y .

x	y
0	b
2	1
4	9
6	17
8	25

What is the value of b ?

- A. -15
- B. -11
- C. -7
- D. -3

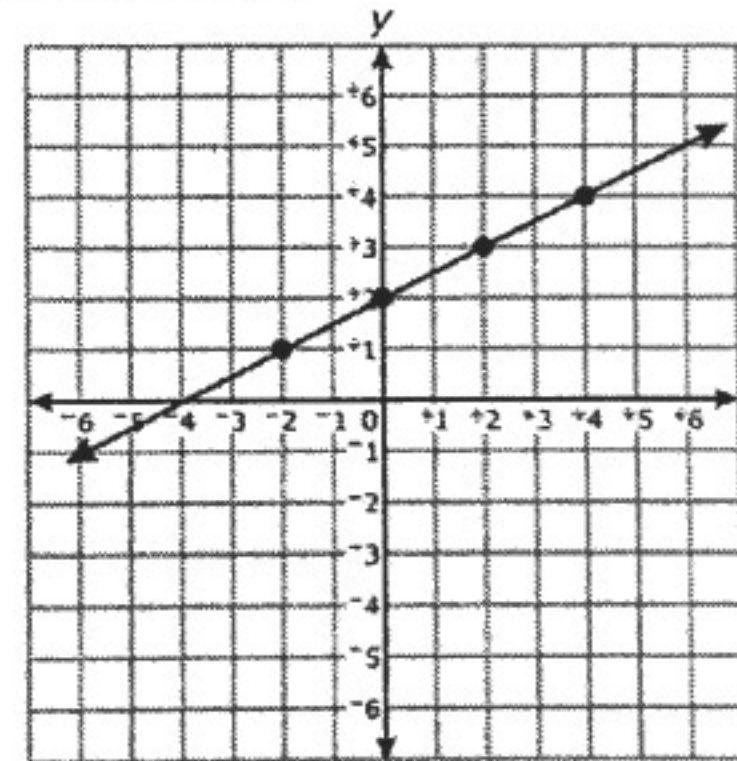
4. Which of these relations is NOT a function?

- A. $R = \{(0, 0), (2, 6), (-4, -12), (-5, -15)\}$
- B. $R = \{(-2, 2), (2, -2), (-4, 4), (4, -4)\}$
- C. $R = \{(4, 5), (4, 8), (5, 10), (6, 12)\}$
- D. $R = \{(2, 3), (4, 3), (6, 3), (5, 3)\}$

5. Function V contains the points in the table below.

x	y
3	6
5	10
7	14

Function W is shown on the graph below.



What is the difference in the y -intercepts of the two functions?

- A. 0
- B. 1
- C. 2

6. Which table contains only coordinates that satisfy the equation $y = 3x^2 - 4$?

A.

x	y
-2	-16
-1	-7
0	-4
1	-1
2	-8

B.

x	y
-2	-16
-1	-1
0	4
1	1
2	-16

C.

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

D.

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

- 7 Two stores sell used DVDs. Both stores charge a flat fee for shipping, plus the same price for any used DVD. Store A charges a total of \$20.99 for 4 used DVDs and \$32.99 for 7 used DVDs. Store B's costs are represented in the table below.

Store B

Number of DVDs	Total Cost (\$)
4	20.99
6	29.49
9	42.24

Which statement is true?

- A. Store A charges \$0.25 more per DVD than Store B.
 B. Store A charges \$1.00 more for shipping than Store B.
 C. Store B charges \$0.25 more for shipping than Store A.
 D. Store B charges \$1.00 more per DVD than Store A.
8. A parking deck for a museum uses the equation $y = 2.75x + 5$ to calculate the cost, y , to park a car x number of hours. A parking deck for a hotel uses the table below to calculate the cost to park a car hourly.

Hotel Parking Deck

Hours	Cost
3	\$14.75
6	\$21.50
10	\$30.50

Which parking deck charges the most per hour and by how much?

- A. The parking deck for the hotel charges \$1.50 more per hour.
 B. The parking deck for the museum charges \$1.50 more per hour.
 C. The parking deck for the hotel charges \$0.50 more per hour.
 D. The parking deck for the museum charges \$0.50 more per hour.

9. If the coordinates from each table are graphed, which will form a linear pattern?

A.

x	y
-1	2
0	4
1	8
2	16

B.

x	y
2	2
3	1
4	2
5	3

C.

x	y
3	7
5	8
6	10
8	13

D.

x	y
2	5
4	6
6	7
8	8

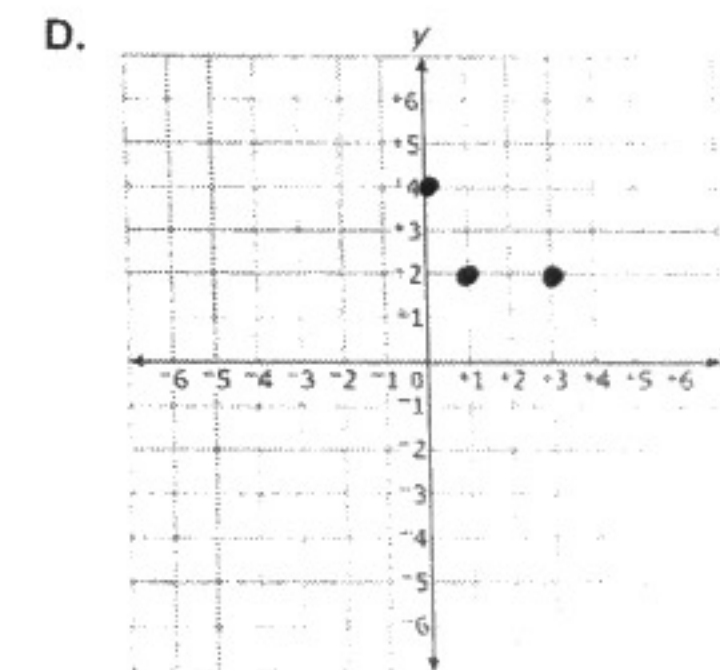
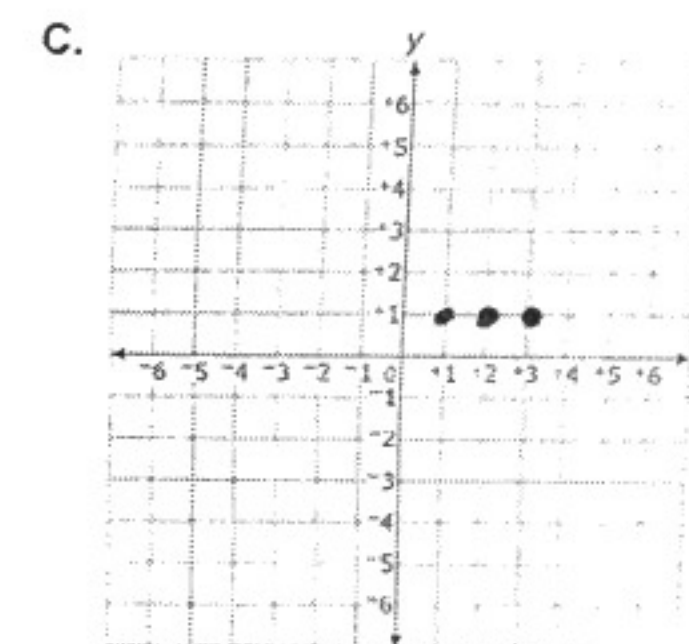
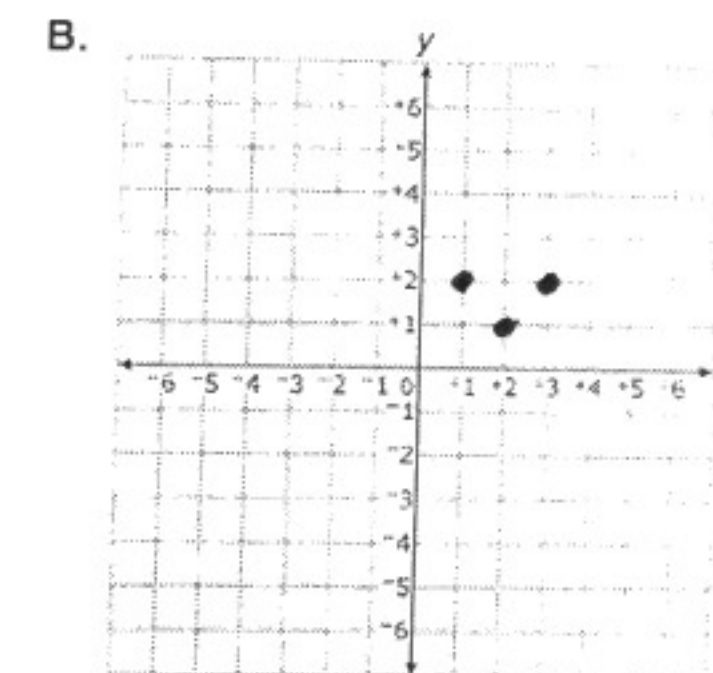
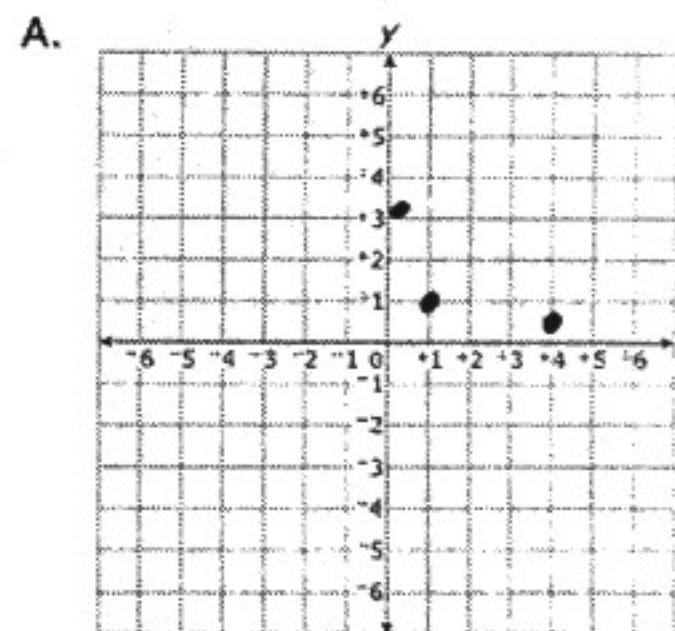
10. Which set of points is nonlinear?

- A. $\{(-3, -7), (0, -6), (3, -5)\}$
 B. $\{(-2, -1), (0, -3), (4, -5)\}$
 C. $\{(-4, 6), (0, 9), (4, 12)\}$

11. Which numerical pattern is nonlinear?

- A. 3, 11, 19, 27, ...
 B. 1, 3, 9, 27, ...
 C. 1, 4, 7, 10, ...
 D. 2, 3, 4, 5, ...

12. Which set of data could be represented by a linear function?



- 13 Sean and Julie are landscapers. Each person charges a one-time fee plus an hourly fee. Sean uses the equation $y = 20x + 30$ to determine the charge, y , in dollars for working x hours. Julie uses this table to determine the charge, y , for working x hours.

Charges for Julie

Number of Hours Worked	0	1	2	3	4
Total Charge in Dollars	26	48	70	92	114

Which statement is true for these two landscapers?

- A. Sean charges a greater one-time fee because the equation shows a greater rate of change than the table.
- B. Julie charges a greater one-time fee because the table shows a greater rate of change than the equation.
- C. Sean charges a greater one-time fee because the equation shows a greater y -intercept than the table.
- D. Julie charges a greater one-time fee because the table shows a greater y -intercept than the equation.
14. The cost to join a gym includes a one-time membership fee, plus a monthly fee.
- John joined the gym and paid \$325 for 6 months.
 - Abigail joined the gym and paid \$475 for 9 months.
- What is the monthly fee after a person joins the gym?

- A. \$25
- B. \$50
- C. \$55
- D. \$150

15. Which equation represents a line with a slope of $-\frac{2}{3}$ that passes through point $(5, -2)$?

- A. $2x + 3y = -11$
- B. $2x + 3y = -4$
- C. $2x + 3y = 4$
- D. $2x + 3y = 11$

16. Which function table represents the equation $y = 2x + 1$?

A.

x	y
0	1
1	3
2	5
5	11

B.

x	y
1	0
3	1
5	2
7	15

C.

x	y
0	2
1	5
2	8
4	9

D.

x	y
2	0
5	1
8	2
10	21

17. Which table of values below represents a linear relationship?

A.

x	y
-8	8
-4	4
0	8
4	4
8	8

B.

x	y
7	7
5	7
9	7
1	7
-7	7

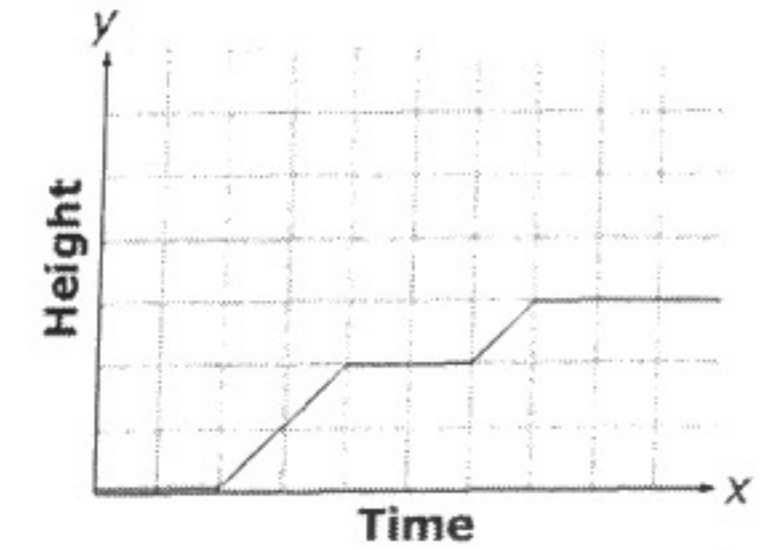
C.

x	y
6	2
3	4
0	7
-3	11
-6	16

D.

x	y
5	8
4	7
3	5
2	4
1	2

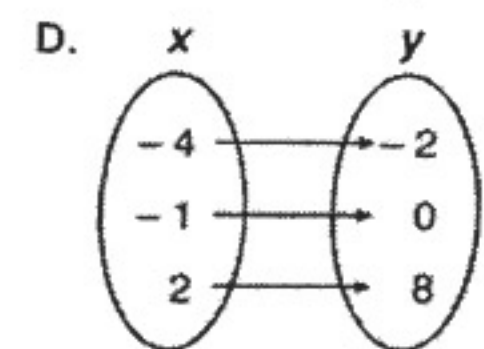
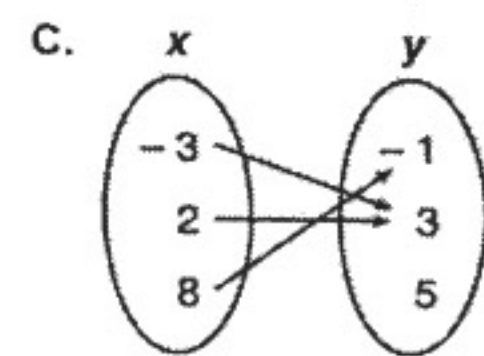
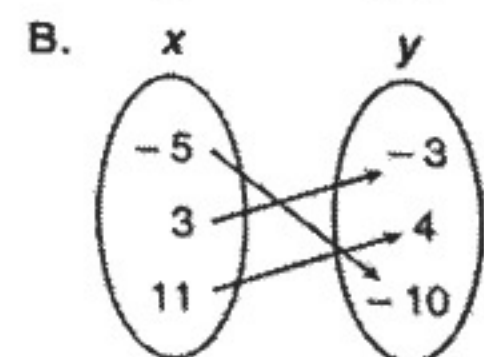
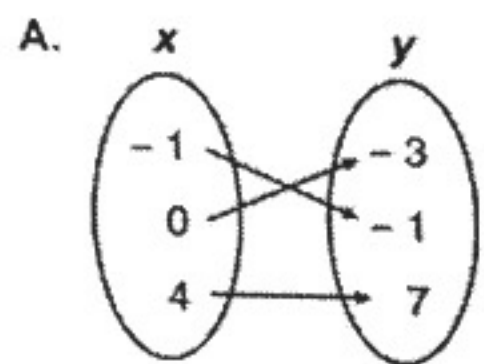
18. The graph below represents a Height (y) vs. Time (x) of an object.



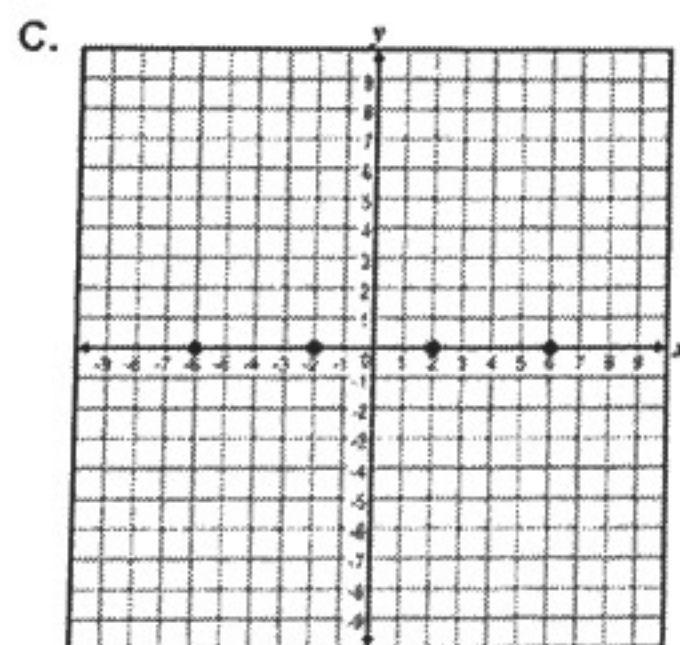
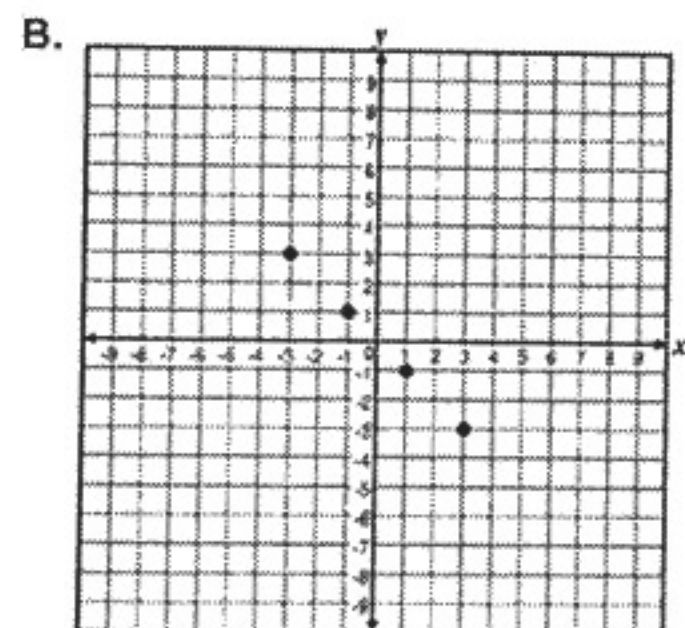
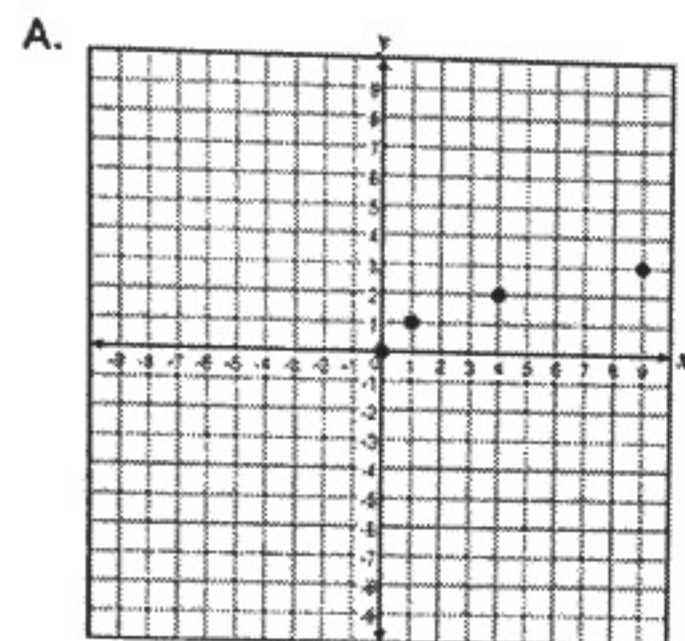
Which scenario *best* matches the graph?

- A. A plane takes off, flies at a certain altitude, then lands.
- B. A plane taxis on the run way, lifts off, ascends to a certain altitude, and flies for a while.
- C. A plane takes off, ascends to an altitude and flies for a while, then ascends to another altitude, and flies for a while.
- D. A plane taxis on the run way, lifts off, ascending to a certain altitude, flies for a while, ascends to a higher altitude, and flies at the new altitude.

19. Which relation best represents a linear function?



20. Which coordinate plane contains plotted points that represent the graph of a nonlinear function?



21. What is the slope formula?

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

22. What are some characteristics of linear functions?

23. What are some characteristics of non-linear functions?

24. What is an equation of the line passing through the points (1, 3) and (4, -6)?

25. Find the rate of change and y-intercepts.

a) $-2x - y + 7 = 14$

b) $4x + 2y = 3x + 4$