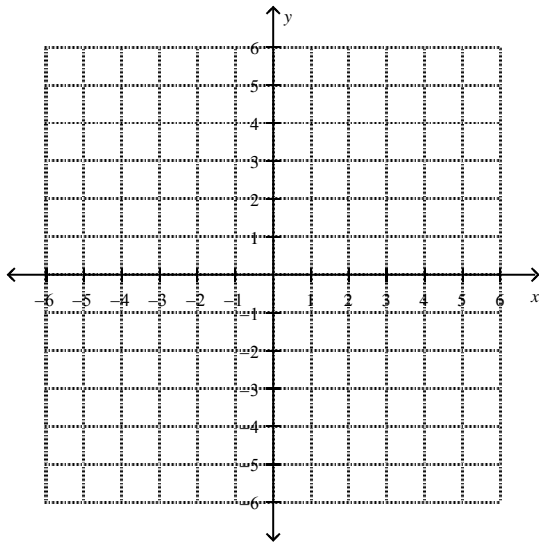


Name: \_\_\_\_\_

**HW # 1 – Interpreting Graphs (linear vs nonlinear)**

1. Make a table of values and plot the following function:  $y = 2x^2 - 2$ .

$x$	$y = 2x^2 - 2$	$y$	$(x, y)$
-2			
-1			
0			
1			
2			



Is this linear or nonlinear, explain?

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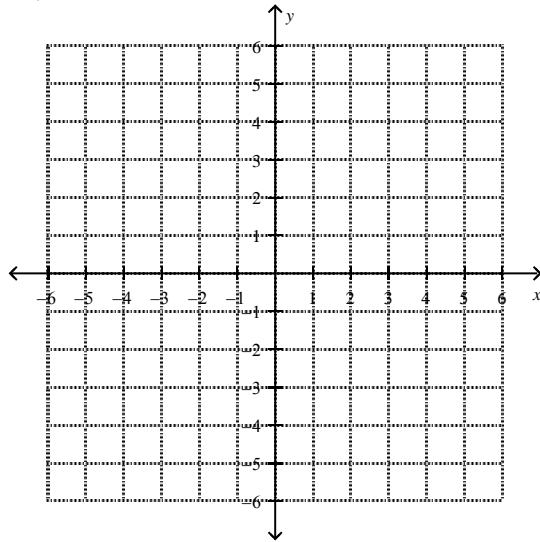
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2. Graph the following table; determine whether it is linear or nonlinear.

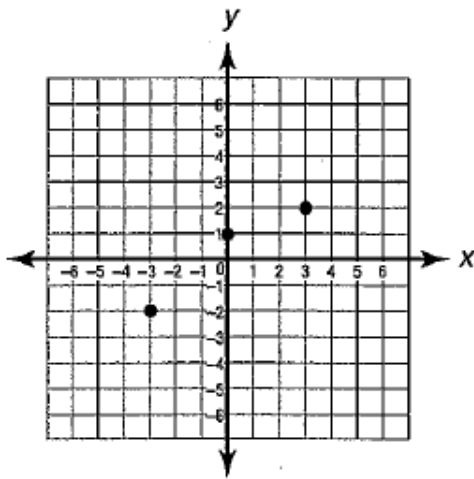
$x$	$y$
-4	4
-2	0
0	-4
2	-8



**Multiple Choice:**

Identify the choice that best completes the statement or answers the question.

3. Doreen is graphing an equation. So far, she has graphed these points.

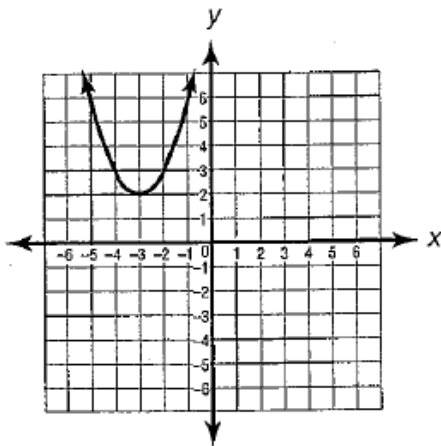


What conclusion can you draw about the equation Doreen is graphing?

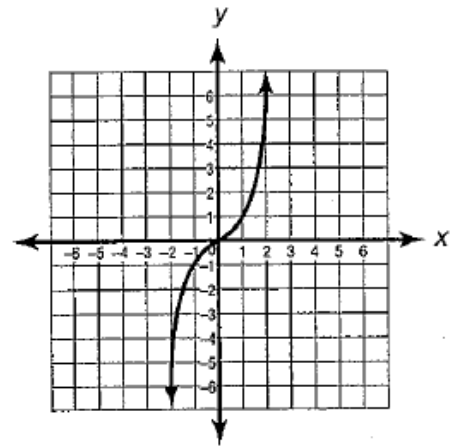
- F It is linear.
- G It is nonlinear.
- H It is impossible to tell whether it is linear or nonlinear until she graphs more points.
- J It is neither linear nor nonlinear.

4. Which is the graph of a linear equation?

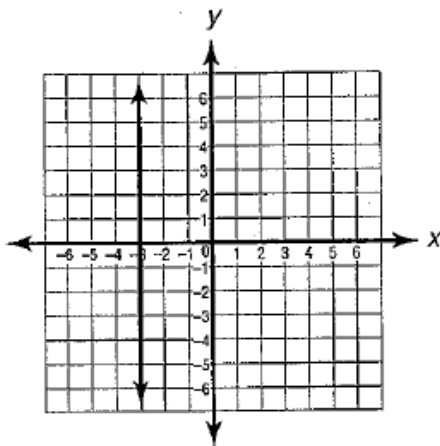
F



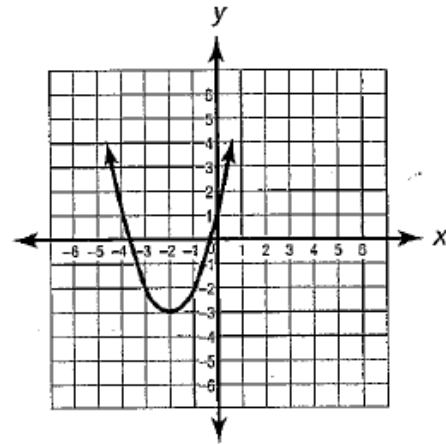
H



G



J

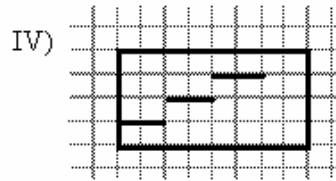
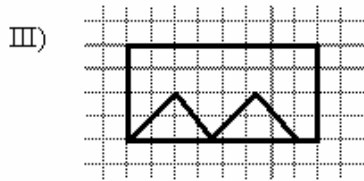
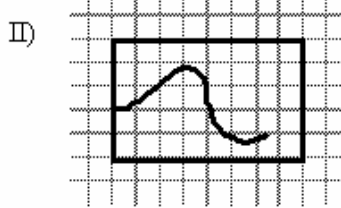
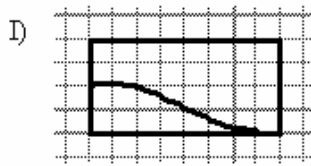


5. Which equation is not linear? (Hint: think about the graph of each equation.)

- A  $y = 4x$
- B  $y = 4x - 4$
- C  $y = 4x^2$
- D  $y = 4 - x$

6. Which graph below most likely represents each of the following?

1. a person's body temperature as he enters a sauna and then cools off in a jacuzzi
2. the rise and fall of an elevator as it carries passengers from the ground floor to an observation tower
3. the cost to mail a package based on weight categories



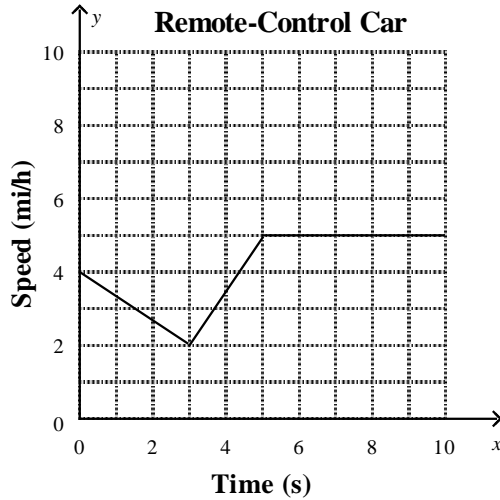
a) II; IV; I

b) II; III; IV

c) I; III; II

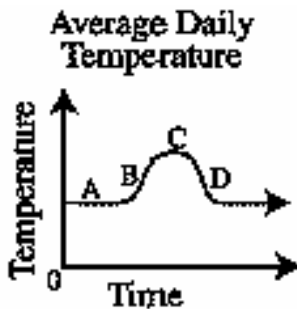
d) II; I; IV

7. Use the graph below. Describe the speed of the remote-control car over time.



- a) The speed of the car decreases from 4 mi/h to 2 mi/h in the first 3 seconds, increases to 5 mi/h in the next 2 seconds, and then remains at 5 mi/h for the last 5 seconds.
- b) The speed of the car increases from 4 mi/h to 2 mi/h in the first 3 seconds, decreases to 5 mi/h in the next 2 seconds, and then remains at 5 mi/h for the last 5 seconds.
- c) The speed of the car decreases from 4 mi/h to 2 mi/h in the first 3 seconds, increases to 6 mi/h in the next second, and then remains at 6 mi/h for the last 6 seconds.
- d) The speed of the car decreases from 4 mi/h to 2 mi/h in the first 3 seconds, increases to 5 mi/h in the next 5 seconds, and then remains at 5 mi/h for the last 10 seconds.

8. The graph below shows the average daily temperature over the period of a year. *Explain* how each labeled section of the graph relates to the four seasons.



**Spiral:**

9. Solve and check the following equation:  $15 = -3(x-1)+9$

10. Evaluate the following:  $\frac{3(16-x)}{2x}$  when  $x = 10$ .