Math 8 Name_____

Linear Functions

Score_____Per____

1. What does it mean for a function to be linear? _____

_____

2. What does it mean for a function to be increasing? _____

_____

3. What does it mean for a function to be decreasing? _____

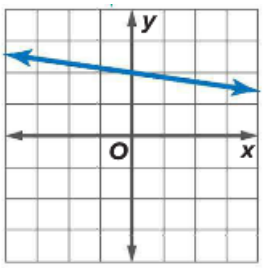
_____

4. What does a linear equation look like? _____

_____

Determine if each graph represents a linear or a nonlinear function. Explain.

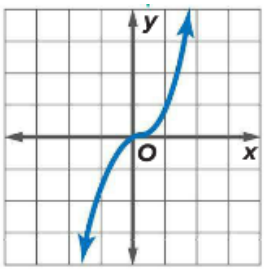
5.



Linear or **Nonlinear**

Explain:

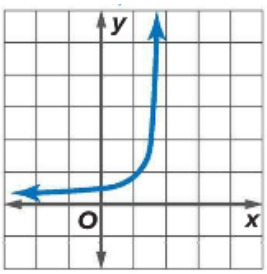
6.



Linear or **Nonlinear**

Explain:

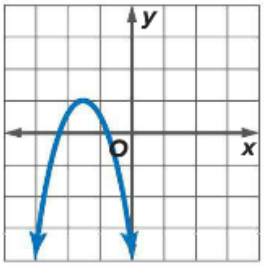
7.



Linear or **Nonlinear**

Explain:

8.



Linear or **Nonlinear**

Explain:

Determine if each equation represents a linear or a nonlinear function. Explain.

9. $y = 2x^2 + 1$

Linear or **Nonlinear**

Explain:

10. $y = 2x + 4x - 3$

Linear or **Nonlinear**

Explain:

11. $y = 7$

Linear or **Nonlinear**

Explain:

12. $y = 4x^3 - x^2 - 2$

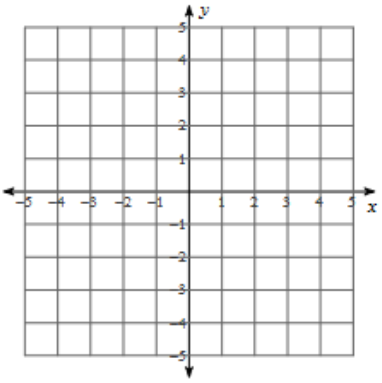
Linear or **Nonlinear**

Explain:

Graph each function by making a table of ordered pairs. Determine whether each function is *linear* or *nonlinear*. Explain.

13. $y = -x + 1$

x	y

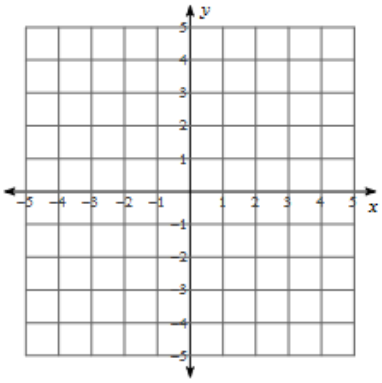


Linear or **Nonlinear**

Explain:

14. $y = \frac{-4}{x}$

x	y

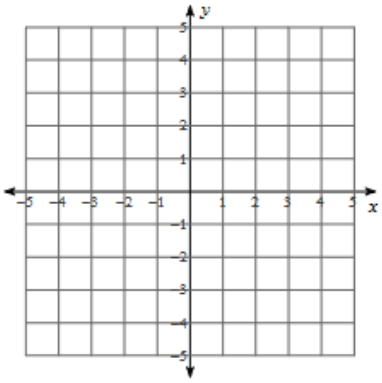


Linear or **Nonlinear**

Explain:

15. $y = \frac{3x}{2}$

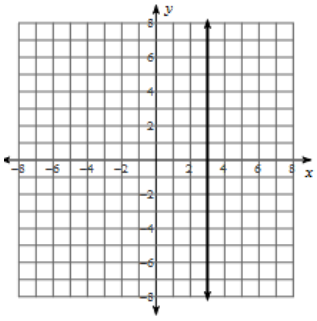
x	y



Linear or **Nonlinear**

Explain:

16. Does the graph at the right represent a linear function? Explain.



17. The area of a square is a function of its perimeter. Complete the table, then graph the function. Explain whether the function is linear and if the graph is increasing or decreasing.

Perimeter	Area
4	
8	
12	
16