

Non Linear

Create examples of each of the following...

Linear

Graph:

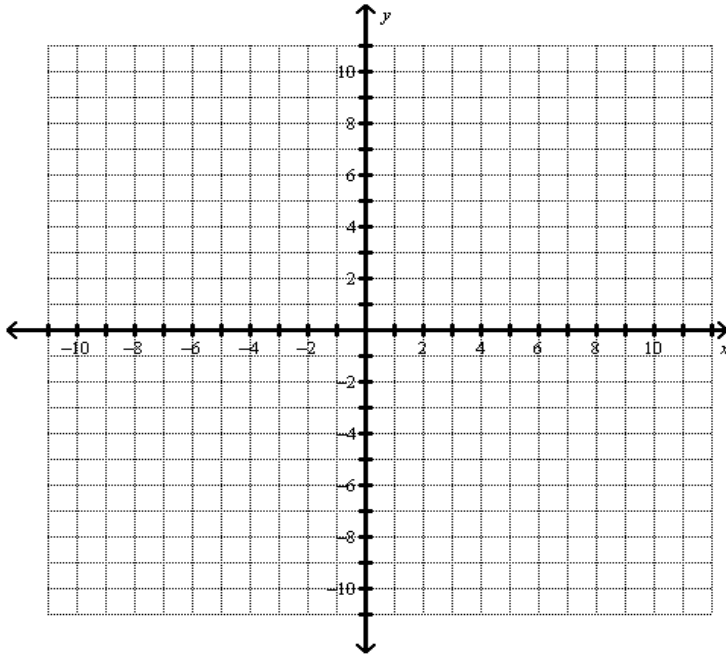


Table:

x	y

Situation:

Equation:

Non - Linear

Graph:

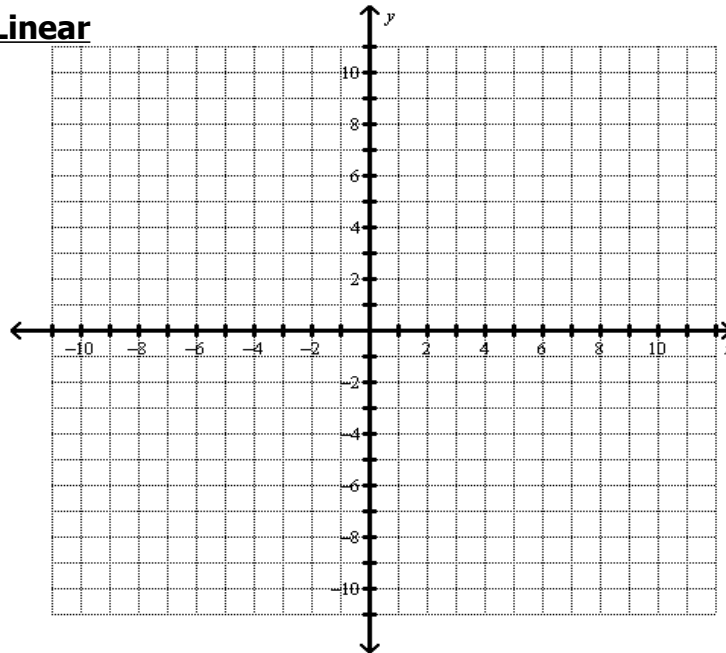


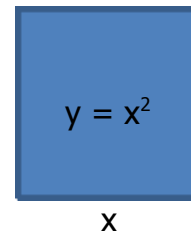
Table:

x	y

Situation:

Equation:

A square tile has side length of x inches. The equation $y = x^2$ gives the area y of the tile in square inches.

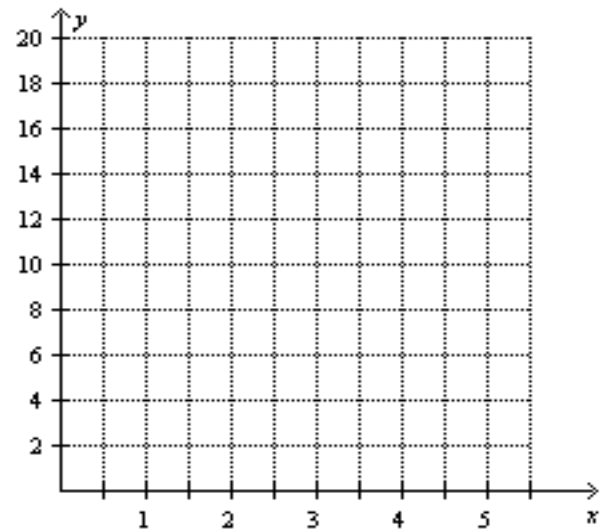


1. Do you think that $y = x^2$ will produce a graph that is a straight line (linear)? Why or why not?

2. Complete the table.

Side Length, x	1	2	3	4
Area, y				

3. Plot the points, and then connect the points to represent all the possible x -values and their corresponding y -values. Label both the x -axis and the y -axis.

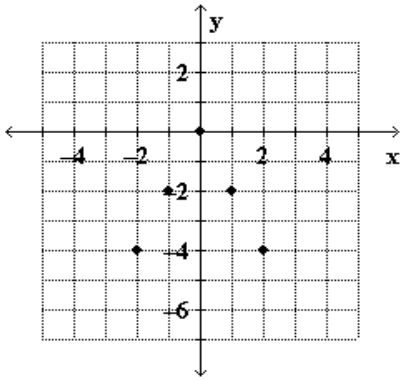


4. Decide whether the equation $y = x^2$ is a linear equation. Explain.

5. How is the equation, $y = x^2$ different from the linear equations you have graphed?

6. Explain whether you think the equation $y = 2x^2 + 4$ is a linear equation.

7. **Error Analysis** A student graphed several solutions of $y = -2x$ as shown. The student concluded that the equation is not a linear equation. Explain the student's error.



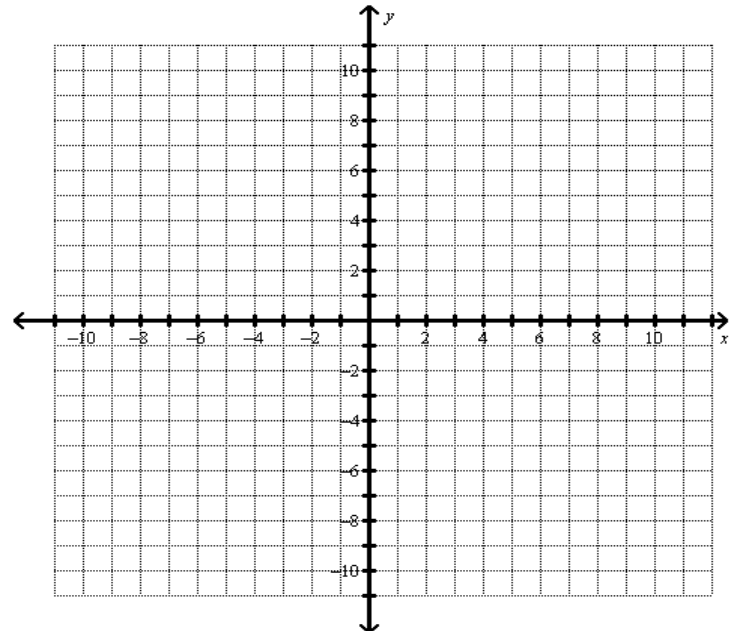
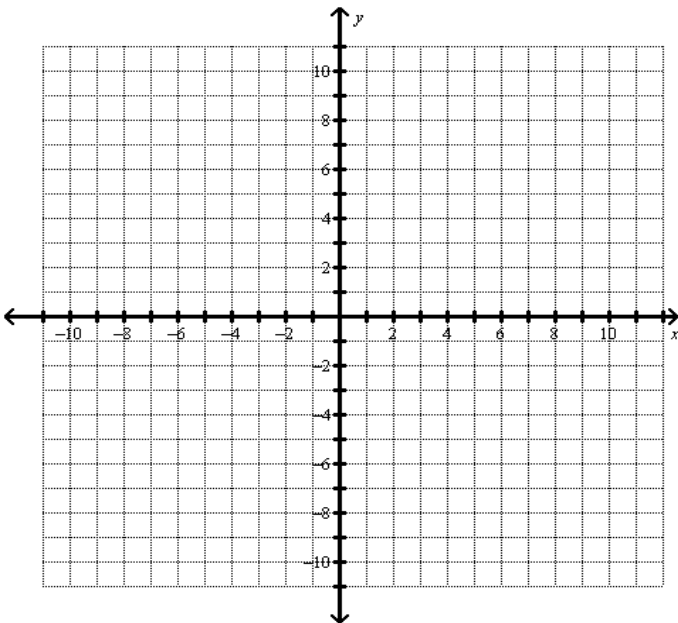
Graph solutions of each equation and tell whether the equation is linear or non-linear.

8. $y = 5 - 2x$ Linear or Non-linear

Input, x	-1	1	3	5
Output, y				

9. $y = 2 - x^2$ Linear or Non-linear

Input, x	-2	-1	0	1	2
Output, y					



10. Olivia measured several rooms in her house in feet. She wants to express the measurements in inches. Write an equation relating feet x and inches y . Tell whether the equation is Linear or Non-linear.

11. Natalie receives \$100 from her grandmother for her birthday. She also saves \$20 every month. Write an equation relating months x and total savings y . Tell whether the equation is Linear or Non-linear.

For 12 & 13, explain whether each equation is a linear equation.

12. $y = x^2 - 1$

13. $y = 1 - x$

14. **Error Analysis:** A student claims that the equation $y = 7$ is not a linear equation because it does not have the form $y = mx + b$. Do you agree or disagree? Why?