Algebra
Linear Relations Test Review
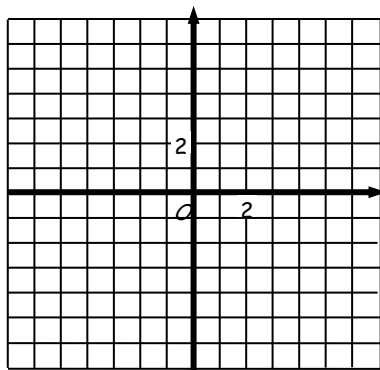
Name _____

Period _____

Create a table and graph the equations below. Identify whether the function is linear or nonlinear and justify your answer.
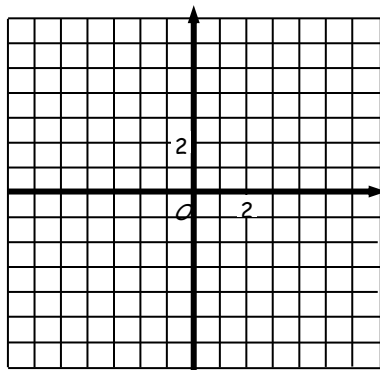
1. $y = 2x - 3$

x	y

Is it Linear? Why or why not?

2. $y = -x^2 + 2$

x	y

Is it Linear? Why or why not?

3. $y = -x$

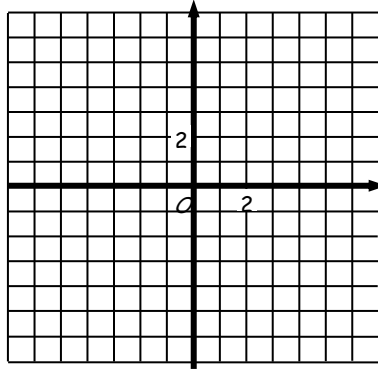| x	y
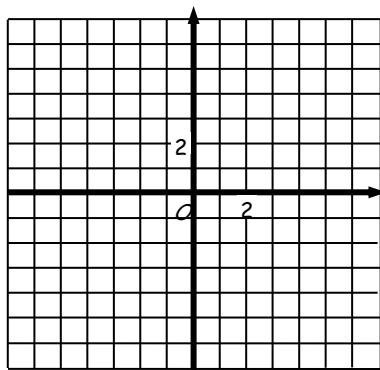
Is it Linear? Why or why not?

Put each equation below in y = mx + b form. Create a table and graph and identify the rate of change and y-intercept for each equation.
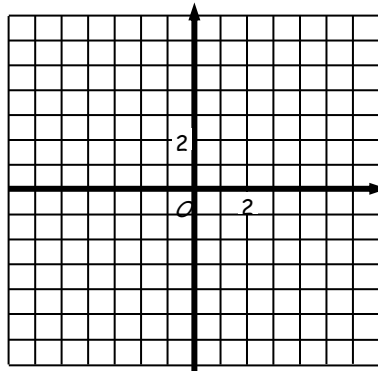
4.   2x – 4y = 12

x	y

Rate of change: _____

Y-Intercept: _____

Increasing or Decreasing? _____

5.   x – y = 6

x	y

Rate of change: _____

Y-Intercept: _____

Increasing or Decreasing? _____

6.   -3x + 9y = 36

x	y
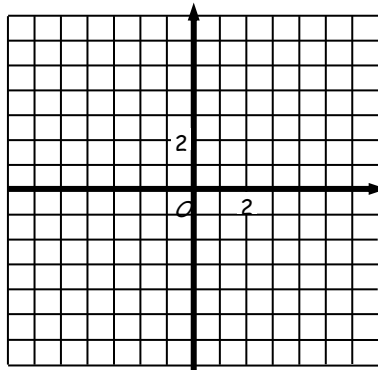
Rate of change: _____

Y-Intercept: _____

Increasing or Decreasing? _____

7. Match the equations in the left column to the equation from the right column that create <u>parallel</u> lines when graphed on the same plane.

    1. $y = -\dfrac{1}{2}x + 7$ A. $y = 4x - 3$

    2. $y = -\dfrac{1}{4}x - 1$ B. $y = -\dfrac{1}{2}x - 3$

    3. $y = -2x$ C. $y = -2x + 5$

    4. $y = 4x + 2$ D. $y = -\dfrac{1}{4}x + 4$

8. Match the equations in the left column to the equation from the right column that create <u>perpendicular</u> lines when graphed on the same plane.

    1. $y = -\dfrac{1}{2}x + 7$ A. $y = \dfrac{1}{2}x - 1$

    2. $y = -\dfrac{1}{4}x - 1$ B. $y = -\dfrac{1}{4}x + 4$

    3. $y = -2x$ C. $y = 4x - 3$

    4. $y = 4x + 2$ D. $y = 2x + 1$

9. Write an equation that would be parallel to y = -5x - 2?

10. What is the rule for lines to be parallel?

11. Write an equation that would be perpendicular to y = 2x + 11?

12. What is the rule for lines to be perpendicular?

Cinemark Theater offers a yearly membership for which customers pay a fee to join and then receive a reduced price to pay to see each movie. The membership fee is $120 plus $1.50 per movie. A non-member pays $7.50 per movie.

13.   What are the independent and dependent variables?

14.   Create an Equation to represent the cost for members and non-members.

       Members _____   Non-Members _____

15.   Find the point of intersection of the two graphs. Describe what this point means in terms of cost to watch movies.

16.   How many movies would you have to watch to make the yearly membership a better deal?

17.   Identify the y-intercepts for the graph. What do the y-intercepts represent in the situation?

18.   Identify the coefficients for the graph. What do the coefficients represent in the situation?

19.   If you watched an average of 28 movies a year, should you pay for a membership? Why or why not?