Determine the independent and dependent quantities in each scenario.

1. Adam is selling lemonade at his stand. He can sell 5 cups of lemonade each hour.

    Independent = _____   Dependent = _____

2. Serena is a growing child. Her height changes each year that her and her parents measure how tall she is on Christmas Day.
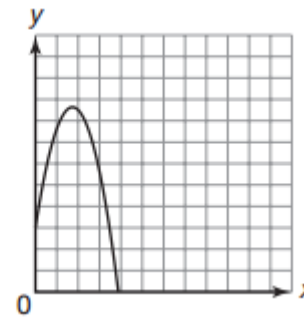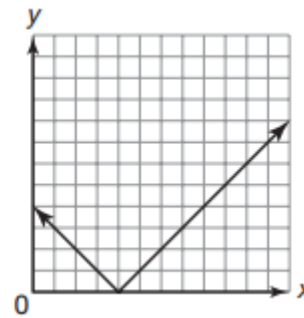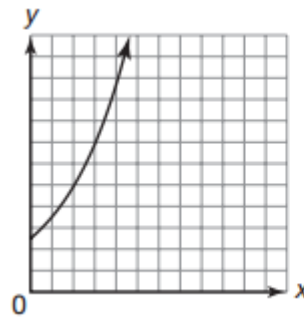
    Independent = _____   Dependent = _____

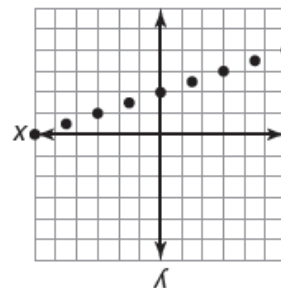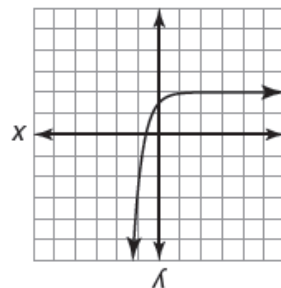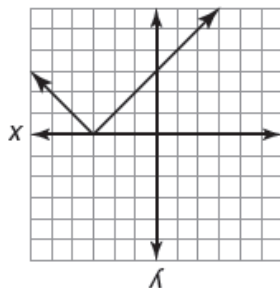**Circle the graph that best models each scenario.**

3. Kylie is riding a ski lift. The lift begins going up the hill at a steady rate, then stops for 3 and a half minutes. After that, it begins going back uphill at the same rate.
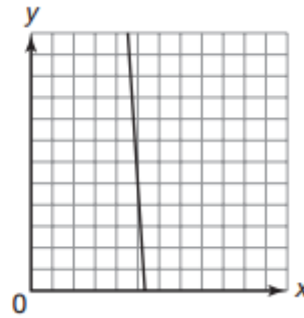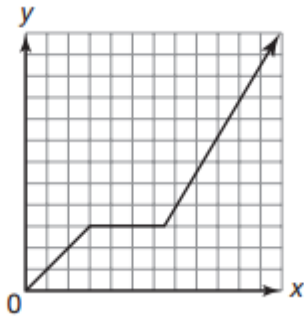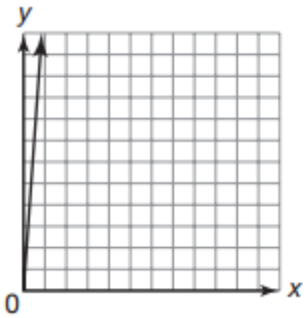
4. Harry throws a baseball up in the air and it comes back down to the ground.

5. Determine whether each graph is discrete or continuous.

6. Define discrete graph with a couple of words.
7. Define continuous graph with a couple of words.

Fill in the blank with **relation** or **function** for 8 and 9.

8. A relation where for each input value there exists exactly one output value (for every x value, there is only one y value) is a _____.
9. The mapping between a set of inputs and a set of outputs is a _____.

Fill in the blank with **domain, range, or vertical line test** for 10, 11, and 12.

10. Define the vertical line test.

11. The set of all input values of a relation is called the _____.

12. The set of all output values of a relation is called the _____.

13. Draw one function and one non-function.

The function $A(t) = 5t$ represents the total amount of money in dollars Carmen earns babysitting as a function of time in hours. Evaluate each function for the given input value.

$A(t) = 5t$ $A(t) = 5t$

14. A(8) =   15. A(3.5) =

The function $D(h) = 9h$ represents the amount of money that you make each hour that you work.

16. $D(h) = 45$

17. $D(h) = 108$

18. $D(h) = 225$

Substitute and solve for x to determine the exact value of each intersection point.

19. $f(x) = 3x + 20$ when $f(x) = 62$ 20. $f(x) = -3x + 4$ when $f(x) = -5$

A plane ascends at a rate of 1200 feet per second until it reaches its max height of 30,000 feet. Fill out a table to measure the plane's height over time.

21. Complete the table.

22. What are the independent and dependent quantities in this problem situation?

I = _____   D = _____

23. Determine the unit rate of change for the problem.

24. Use function notation to determine the height of the plane at a time of 4 seconds.