

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.

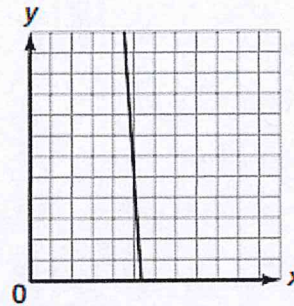
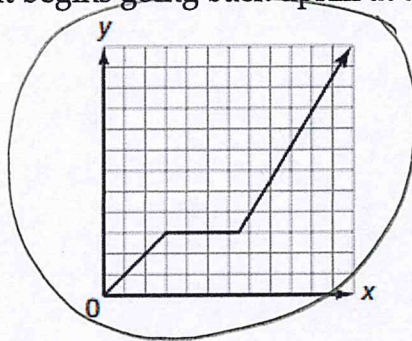
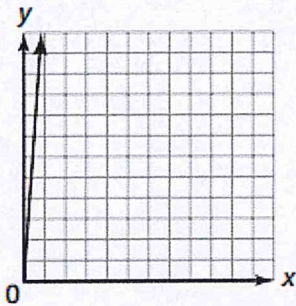
Independent = Time Dependent = Cups of lemonade

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

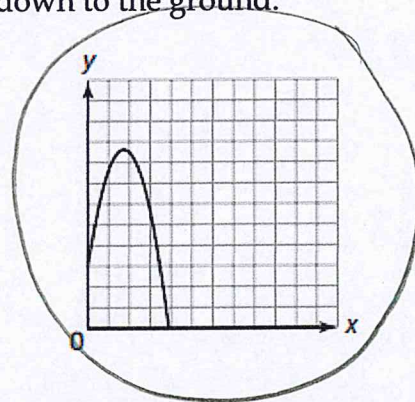
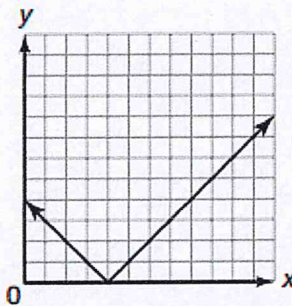
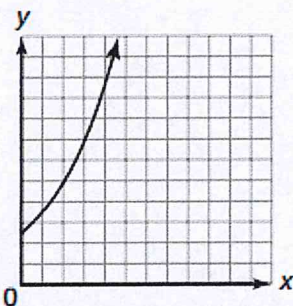
Independent = Time Dependent = Height

Circle the graph that best models each scenario.

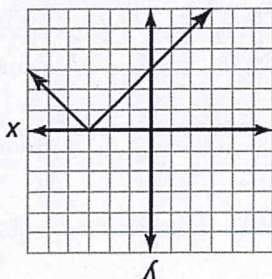
3. Kylie is riding a ski lift. The lift begins going up the hill at a steady rate, then stops for 3 and a half minutes. After that, it begins going back uphill at the same rate.



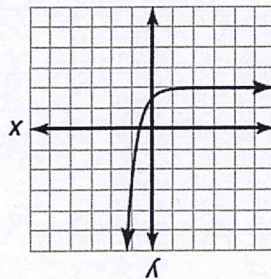
4. Harry throws a baseball up in the air and it comes back down to the ground.



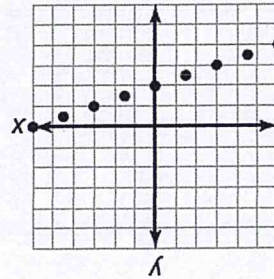
5. Determine whether each graph is discrete or continuous.



Continuous



Continuous



Discrete

6. Define discrete graph with a couple of words. *A graph of disconnected dots*
7. Define continuous graph with a couple of words. *A graph where the points are connected by a line*

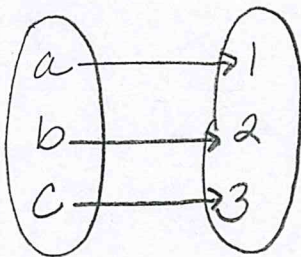
Fill in the blank with **relation** or **function** for 8 and 9.

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 function.
9. The mapping between a set of inputs and a set of outputs is a relation.

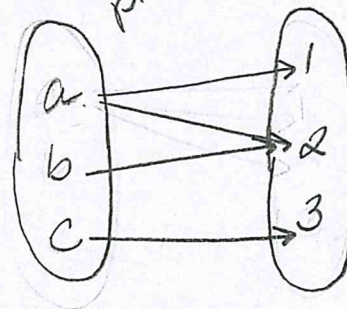
Fill in the blank with **domain**, **range**, or **vertical line test** for 10, 11, and 12.

10. Define the vertical line test. *A visual way to tell if a graph is a function.*
11. The set of all input values of a relation is called the domain.
12. The set of all output values of a relation is called the range.

13. Draw one function and one non-function. *a is a player!*



Function



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.

$$A(t) = 5t$$

14. $A(8) = 5(8)$

$$A(8) = 40$$

$$A(t) = 5t$$

15. $A(3.5) = 5(3.5)$

$$A(3.5) = 17.5$$

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

16. $D(h) = 45$ $\frac{45}{9} = \frac{9h}{9}$

$5 = h$

17. $D(h) = 108$ $\frac{108}{9} = \frac{9h}{9}$

$12 = h$

18. $D(h) = 225$ $\frac{225}{9} = \frac{9h}{9}$

$25 = h$

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

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

$$\begin{array}{r} 62 = 3x + 20 \\ -20 \quad -20 \\ \hline 42 = 3x \\ \frac{42}{3} = \frac{3x}{3} \end{array}$$

$14 = x$

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

$$\begin{array}{r} -5 = -3x + 4 \\ -4 \quad -4 \\ \hline -9 = -3x \\ \frac{-9}{-3} = \frac{-3x}{-3} \end{array}$$

$3 = x$

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 = Time D = Height
23. Determine the unit rate of change for the problem.
 1200 feet / 1 second
24. Use function notation to determine the height of the plane at a time of 4 seconds.

$$\begin{aligned} F(t) &= 1200t + 30000 \\ F(4) &= 1200(4) + 30000 \\ &= 4800 \text{ feet} \end{aligned}$$

	Time	Height
Units	Seconds	Feet
	0	30000
	1	1200
	2	2400
	3	3600
	4.5	5400
	5	6000
Expression	t	$1200t$