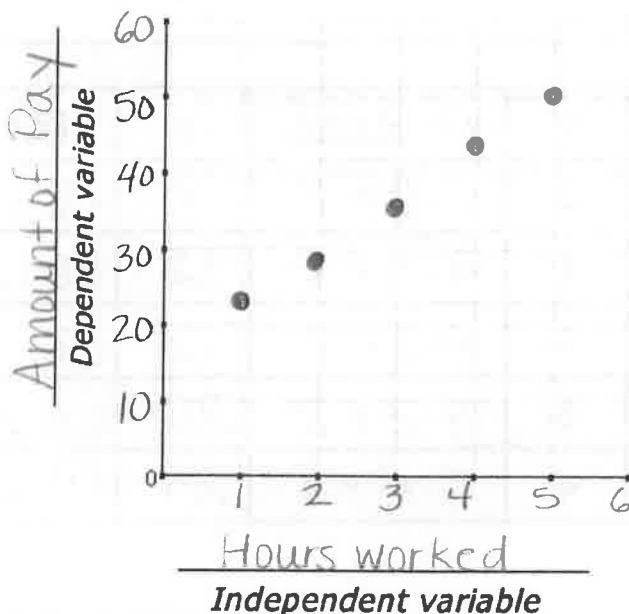


Name Key

Algebraic Relationships Review-ADV

1. Word Problem: Sofia ~~Anna~~ works at Chili's where she earns \$7 an hour plus \$15 in tips.

x Hours	$y = 7x + 15$	y Pay	(x,y)
1	$7 \cdot 1 + 15$	22	(1, 22)
2	$7 \cdot 2 + 15$	29	(2, 29)
3	$7 \cdot 3 + 15$	36	(3, 36)
4	$7 \cdot 4 + 15$	43	(4, 43)
5	$7 \cdot 5 + 15$	50	(5, 50)



Discrete or Continuous? Discrete
 Additive or Multiplicative? Both

Equation: $y = 7x + 15$

Find the equation and value of the **sixth** term in each sequence.

2. Position	1	2	3	4	n
Value of Term	9	10	11	12	$n + 8$

6th Term: 14

Equation: $n + 8 = y$ OR

$y = 8 + x$

3. Position	1	2	3	4	n
Value of Term	6	12	18	24	$6n$

6th Term: 36

Equation: $6n = y$ OR

$y = 6x$

Describe the relationship between the terms in each sequence. Then write the next three terms.

4. 4, 8, 16, 32, ...

$\times 2 \quad \times 2 \quad \times 2$

$\times 2$ 64, 128, 256

Arithmetic or Geometric? Circle one.

5. 7, 15, 23, 31, ...

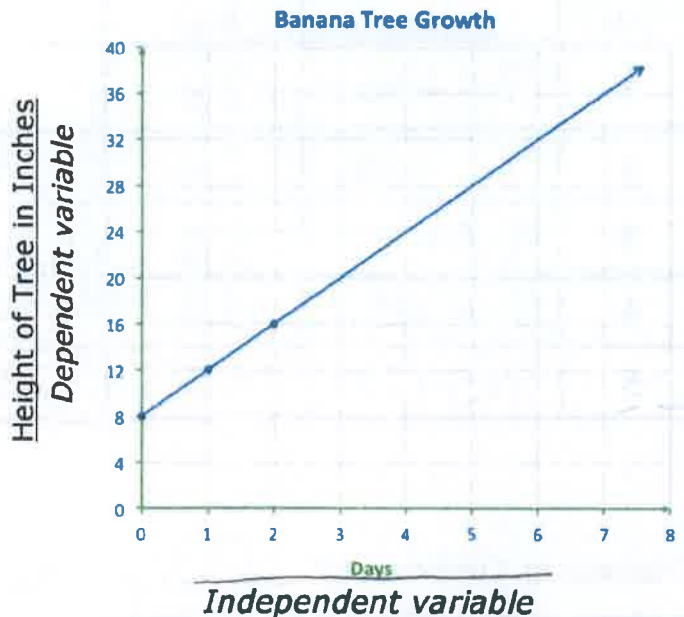
$+8 \quad +8 \quad +8$

$+8$ 39, 47, 55

Arithmetic or Geometric? Circle one.

6. Word Problem: Kamryn bought a banana tree that was 8 inches tall. It grew 4 inches per day.

x	$y = 4x + 8$	y	(x,y)
0	$4 \cdot 0 + 8$	8	(0,8)
1	$4 \cdot 1 + 8$	12	(1,12)
2	$4 \cdot 2 + 8$	16	(2,16)
3	$4 \cdot 3 + 8$	20	(3,20)
4	$4 \cdot 4 + 8$	24	(4,24)



Discrete or Continuous? Continuous
 Additive or Multiplicative? Both

Equation: $y = 4x + 8$

Write an equation for each relationship.

7. Cole saves \$25 a month. $25x = y$

8. Cinemark Theater charges \$4 per adult ticket before 6 PM. $4x = y$

9. Heather is three years older than her brother, Max. $x + 3 = y$

Determine the rate of change and equation for the toothpick pattern below.

1st



4

2nd



7

3rd



10

4th



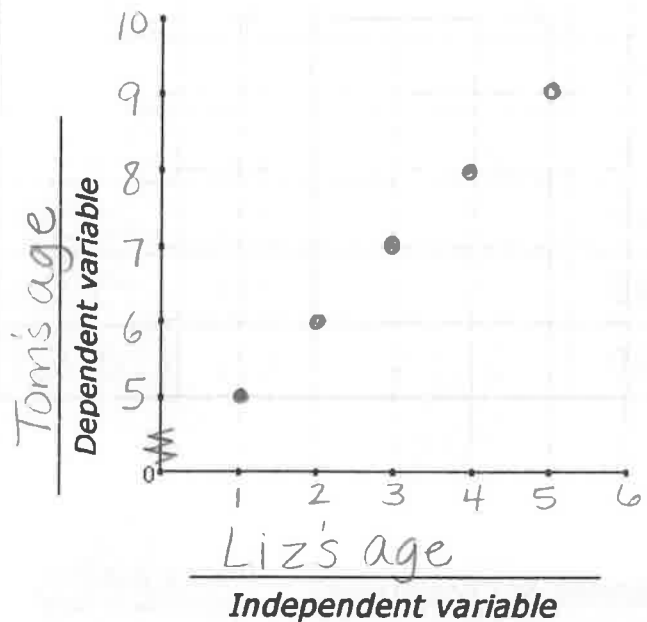
13

10. Rate of change: +3

Equation: $3x + 1 = y$

16. Word Problem: Tom is four years older than his sister, Liz.

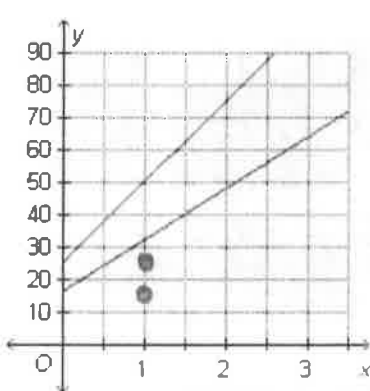
X Liz's age	$y = x + 4$	Y Tom's age	(x,y)
1	$1 + 4$	5	(1,5)
2	$2 + 4$	6	(2,6)
3	$3 + 4$	7	(3,7)
4	$4 + 4$	8	(4,8)
5	$5 + 4$	9	(5,9)



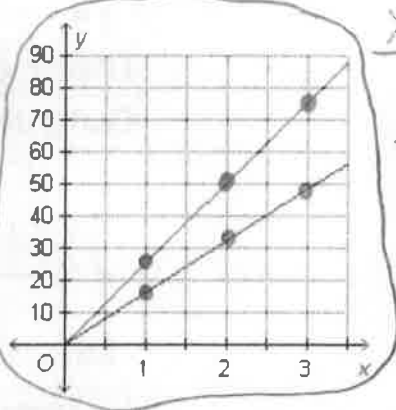
Discrete or Continuous? Discrete
 Additive or Multiplicative? Additive

Equation: $y = x + 4$

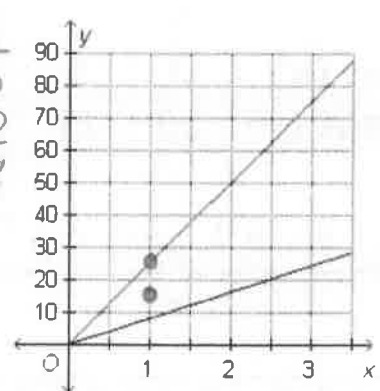
17. Which graph represents the equations $y = 25x$ and $y = 16x$?



x	y
1	25
2	50
3	75



x	y
1	16
2	32
3	48

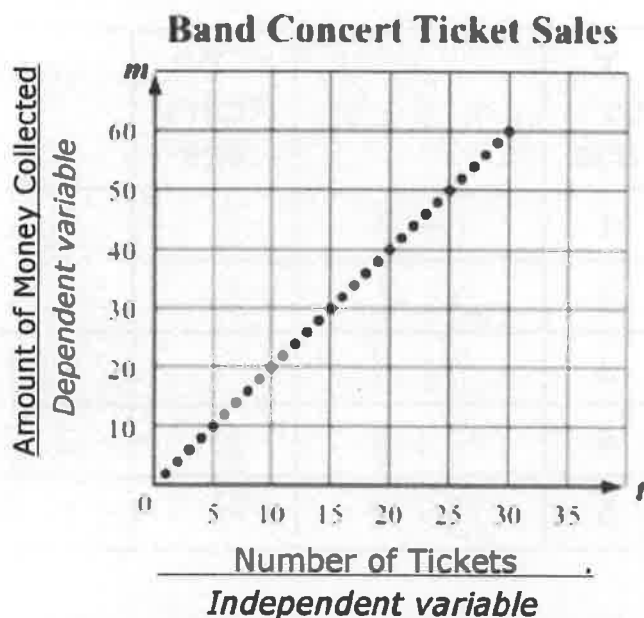


Underline the independent variable and circle the dependent variable in each statement.

- The time it takes to run a mile and the person's running speed
- The temperature of an oven and the speed that a cake bakes
- Joey's heart rate and the number of jumping jacks he does

11. Word Problem: Tickets to the band concert cost \$2 each.

x	$y = 2x$	y	(x,y)
0	2·0	0	(0,0)
5	2·5	10	(5,10)
10	2·10	20	(10,20)
15	2·15	30	(15,30)
20	2·20	40	(20,40)



Discrete or Continuous? Discrete
Additive or Multiplicative? Multiplicative

Equation: $y = 2x$

Determine if each relationship is an additive or a multiplicative relationship or both. Prove your answer and write an equation for each table.

12.

Input (x)	+3	+5	+7
Output (y)	10	12	14

additive; $y = x + 7$

13.

Input (x)	1	2	3
Output (y)	2	7	12

+5 +5

both; $5x - 3 = y$

14.

Input (x)	Output (y)
6	14
7	16
8	18

} +2
} +2

both; $2x + 2 = y$

15.

Input (x)	Output (y)
9	27
12	36
15	45

x 3 x 3 x 3

multiplicative; $3x = y$