Name___Key___

Date_____Period_____

Identify the independent and dependent variables.

1. The temperature of a carton of milk and the time since it was taken out of the refrigerator

    ___temperature___   ___time___
          Dependent Variable   Independent Variable

2. The size of a pizza and its cost

    ___cost___   ___size___
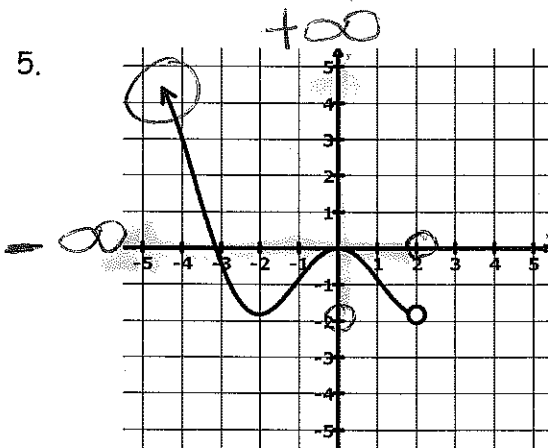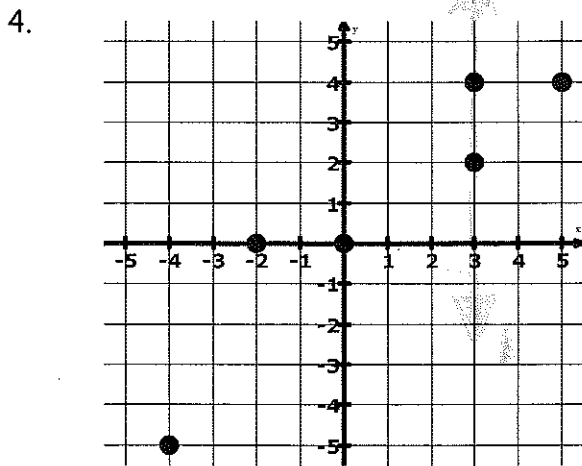   Dependent Variable   Independent Variable

3. The time it takes to drive from Austin to Dallas and the speed you are driving

    ___time___   ___speed___
          Dependent Variable   Independent Variable

*State whether each graph is continuous or discrete. Is it a function? Give the domain and range of each graph.*

4.

5.

(Discrete) / Continuous

Function / (Not a Function)   fails the vertical line test

D: $\{-4, -2, 0, 3, 5\}$

R: $\{-5, 0, 2, 4\}$

Discrete / (Continuous)

(Function) / Not a Function — passes the VLT

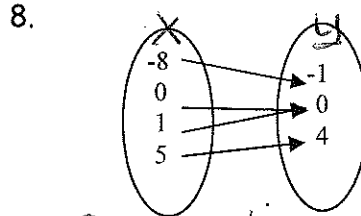D: $-\infty < x < 2$

R: $-2 < y < \infty$

*Determine whether each relation is a function. If the relation is not a function, **explain why not**.*
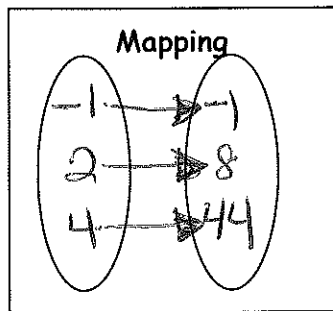
6. Non-function
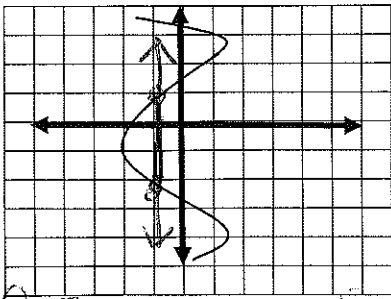
~~fails the vertical~~ line test (x-value of -1 repeats)

7. {(7, 11), (-5, 5), (1, 7), (5, 5)} function
—No x-values repeat

8.

function; only 1 arrow from each x-value so none repeat

9. Create a mapping to represent the function $y = 3x^2 - 4$ when the replacement set for x is $\{-1, 2, 4\}$

$(-1, -1)$ $3(-1)^2 - 4 = -1$

$(2, 8)$ $3(2)^2 - 4 = 8$

$(4, 44)$ $3(4)^2 - 4 = 44$

Evaluate each of the following for the functions $f(x) = 3x^2 + x - 2$ *and* $g(x) = 5x - 8$.   FSS

$f(x) = 3x^2 + x - 2$

10. $f(-2)$ $f(-2) = 3(-2)^2 + (-2) - 2$

$f(-2) = 8$

$g(x) = 5x - 8$
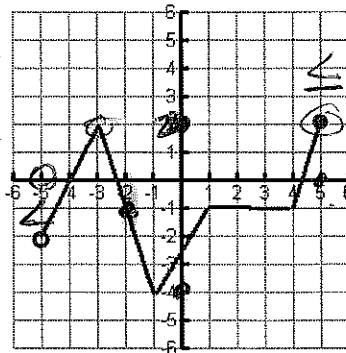
11. ~~g(x) = 22~~ $g(3.2) = 5(3.2) - 8$

$g(3.2)$ $g(3.2) = 8$

Use the graph at the right to answer questions 12 -14.

12. $f(-2) = -1$

13. x when $f(x) = 2$ $X = -3$ and $X = 5$

14. Domain: $-5 < X \leq 5$ Range: $-4 \leq y \leq 2$

initial   + rate per IV

15. Amy and Lesley are going to the state fair. There is a $15.00 admission fee and $2.00 per ride.

   a. Identify the independent and dependent variables. $\underset{DV}{\underline{Cost}}$ depends on $\underset{IV}{\underline{rides}}$
   IV: number of rides
   DV: Total Cost

   b. Write a function rule to describe the situation. $f(x) = 15 + 2x$
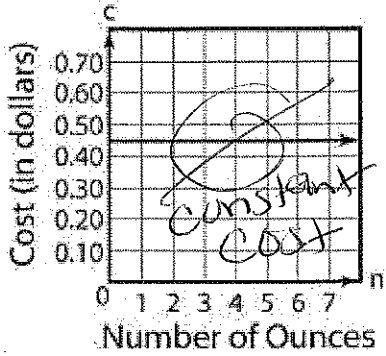   function notation

   c. Find f(10). $f(x) = 15 + 2x$
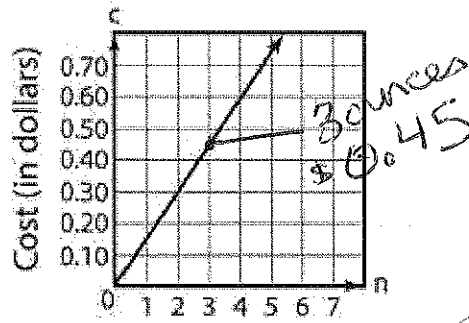 $f(10) = 15 + 2(10)$
   $f(10) = 35$

as ounces↑; cost ↑

16. At the grocery store, dried beans are on special for $0.45 for 3 ounces. Which of these graphs best represents the relationship between the number of ounces of dried beans and the cost?
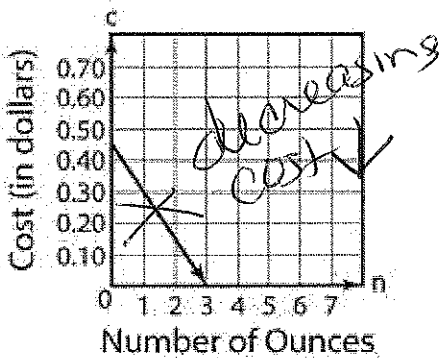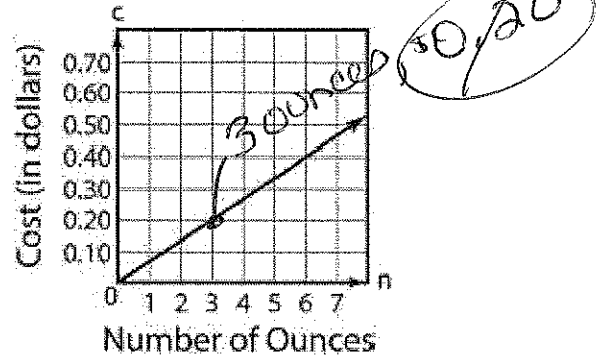
A.

Cost (in dollars): 0.70 0.60 0.50 0.40 0.30 0.20 0.10

Number of Ounces: 0 1 2 3 4 5 6 7

constant cost

C.

Cost (in dollars): 0.70 0.60 0.50 0.40 0.30 0.20 0.10

0 1 2 3 4 5 6 7

3 ounces $0.45

B.

Cost (in dollars): 0.70 0.60 0.50 0.40 0.30 0.20 0.10

0 1 2 3 4 5 6 7

Number of Ounces

decreasing cost

D.

Cost (in dollars): 0.70 0.60 0.50 0.40 0.30 0.20 0.10
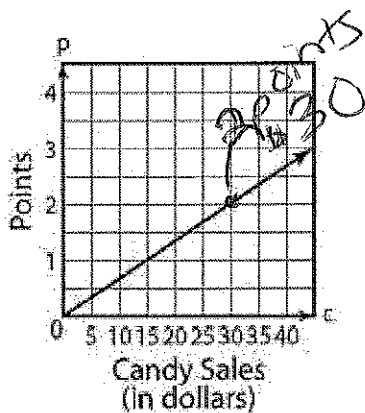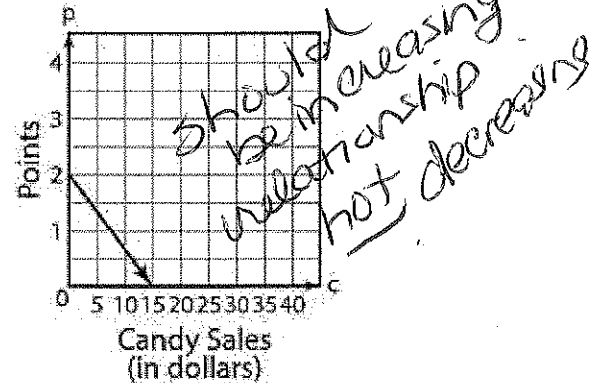
0 1 2 3 4 5 6 7

Number of Ounces

3 ounces $0.20

17. During a school fundraiser, Jake earns 2 points for every $15 worth of candy that he sells. Which of these graphs best represents the relationship between the number of points he earns and the amount of candy he sells?
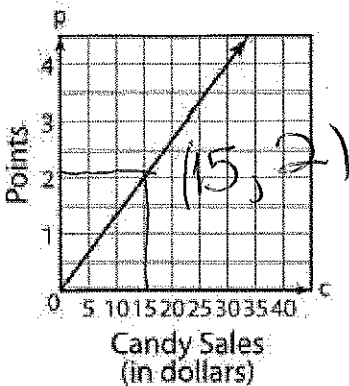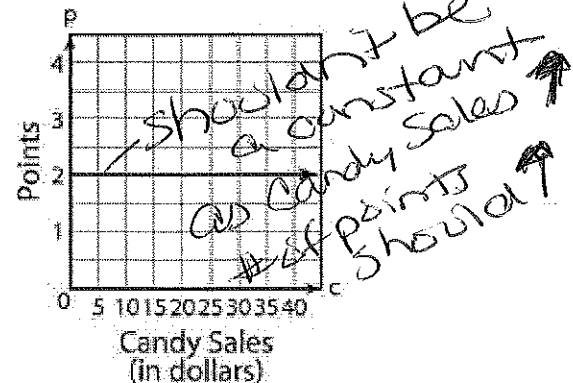
A.

Points: 4 3 2 1

0 5 10 15 20 25 30 35 40

Candy Sales (in dollars)

2 points $30

C.

Points: 4 3 2 1

0 5 10 15 20 25 30 35 40

Candy Sales (in dollars)

should be increasing relationship not decreasing

B.

Points: 4 3 2 1

0 5 10 15 20 25 30 35 40

Candy Sales (in dollars)

$15 2 points
(15, 2)

D.

Points: 4 3 2 1

0 5 10 15 20 25 30 35 40

Candy Sales (in dollars)

shouldn't be a constant as candy sales ↑ # of points should ↑

18.

The graph below shows the amount of growth, in inches, of hair an average person grows in a year.
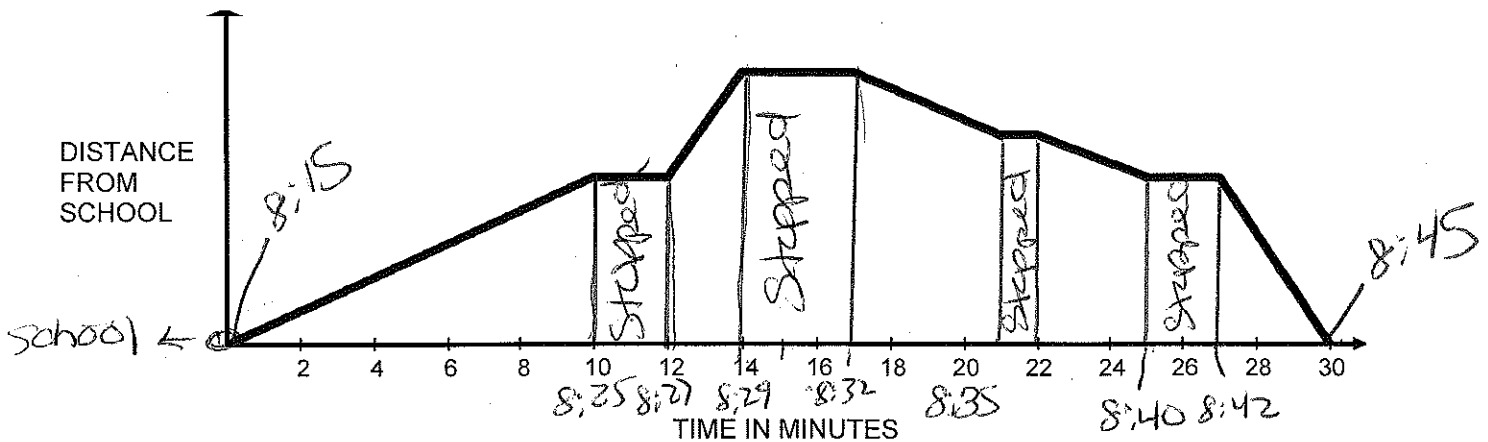

Amount of Growth (in inches) vs Number of Months
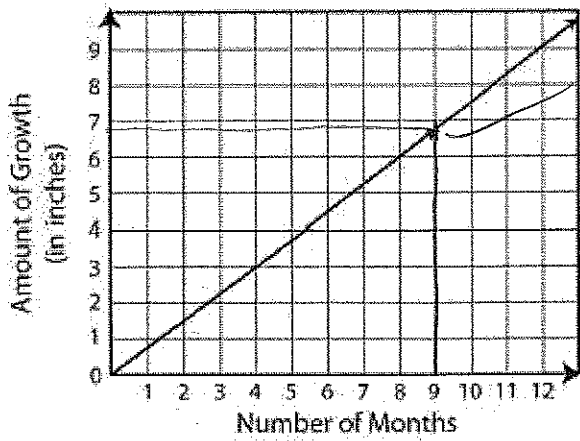
less than 7
greater than 6½

Which is closest to the amount of growth, in inches, an average person's hair would grow in 9 months?

A. $6\frac{1}{4}$

B. $6\frac{1}{2}$

C. $6\frac{3}{4}$ *(circled)*

D. $7\frac{1}{4}$ *(crossed out)*

19. Tony left his algebra work at home, so he must ride his bicycle home to pick it up. He leaves school at 8:15AM and returns to school at 8:45AM. The graph below shows the relationship between the time which has elapsed since he left school and how far he is from school.

DISTANCE FROM SCHOOL

8:15

Stopped Stopped Stopped Stopped

8:45

School

TIME IN MINUTES

8:25 8:27 8:29 8:32 8:35 8:40 8:42

When did Tony Stop and rest?   8:25-8:27, 8:29-8:32, 8:36-8:37
8:40-8:42

20. During which time segments does it appear that Tony rode the fastest?

From 8:27 to 8:29 is the fastest as this is the steepest part (interval) on the graph