Name Gonzalez

Must Show Work For Credit, Pd ____

1 What is the value of x in the equation below?

$$3x - 10x + 5 = 5x + 17$$

A $x = 6$

B $x = -6$

C $x = -\frac{11}{6}$

D $x = -1$

$-7x + 5 = 5x + 17$

$+7x \quad +7x$

$5 = 12x + 17$

$-17 \quad -17$

$\frac{-12}{12} = \frac{12x}{12}$

$-1 = x$

2 What is the value of x in the equation below?

$$\frac{2}{3}(9x - 6) = 4x + 10$$

F $x = -12$

G $x = 8$

H $x = 7$

J $x = 3\frac{1}{5}$

$6x - 4 = 4x + 10$

$-4x \quad -4x$

$2x - 4 = 10$

$+4 \quad +4$

$2x = 14$

$x = 7$

3 The cost for decorations and the disc jockey for the homecoming dance was $1,800. The class members sold 279 tickets and made a profit of $3,450. If x represents the price of each ticket sold, which equation could be used to find x?

A $279x + 1{,}800 = 3{,}450$

B $1{,}800 - 279x = 3{,}450$

C $279x - 1{,}800 = 3{,}450$

D $1{,}800x + 279x = 3{,}450$

Tickets - Expense = Profit

$279x - 1800 = 3450$

4 General admission to the State Fair of Texas is $16.00. For guests to ride the various rides, they must use coupons that cost $0.50 each. The number of coupons needed for each ride varies. The representative function for the situation is $C(x) = 0.5x + 16$, where $C(x)$ represents total cost as a function of the number of coupons, x. What is the domain for visiting and riding rides at the State Fair of Texas?

F $x \geq 0$, where x is an integer

G $x \geq 0$, x is non-negative

H x is all real numbers

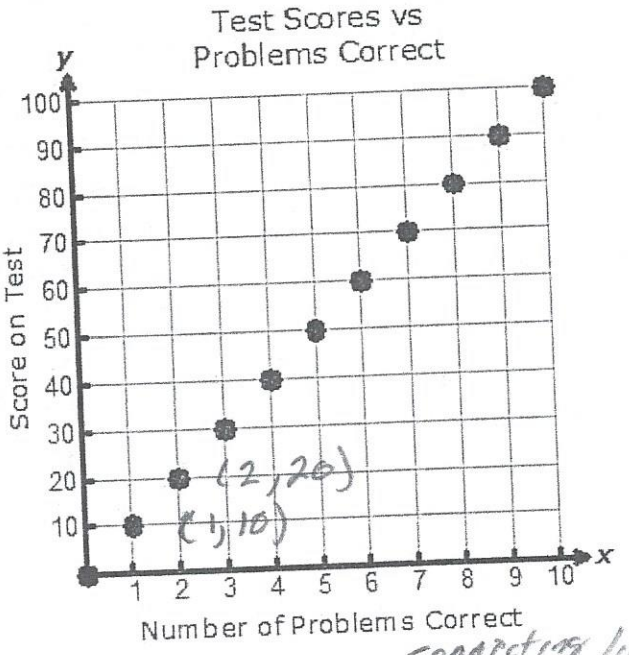
J $x \geq \$16.00$

$C(x) = .5x + 16$

↑

Domain, tickets cannot buy half tickets

5 Mr. Freeman gave his students a 10-problem, multiple choice quiz over equations. In grading the test, he gave students ten points for each correct answer with no partial credit. The graph below represents the score students could make as a function of the number of questions they answered correctly on the quiz.



connecting line series of points

What is the domain of the function, and is the function continuous or discrete?

A {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}, discrete

B {0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100}, discrete

C $0 \leq x \leq 100$, continuous

D $0 \leq x \leq 10$, continuous

6 Jackie is creating a spreadsheet to keep a record of amounts she has collected from customers for candy boxes she has sold to them. She must write a linear equation in two variables to represent the amount collected in terms of number of boxes sold. She has been using the table below to determine the amount to charge.

Insert x-values, check if they give y-values

x ↓ depends, y

Number of Boxes of Candy	Amount Charged ($)
1	12.25
3	25.75
4	32.50
7	52.75
10	73.00

Which linear equation in two variables can Jackie use to represent the amount collected in terms of number of boxes sold inher spreadsheet?

X **F** $y = 13.5x - 1.25$ $y = 13.5(10) - 1.25 = 135 - 1.25 \neq 73$

X **G** $y = 13.5x + 12.25$ $y = 13.5(1) + 12.25 = 13.5 - 12.25 \neq 12.25$

X **H** $y = 5.5x + 6.75$ $y = 5.5(10) + 6.75 = 55 + 6.25 \neq 73$

(J) $y = 6.75x + 5.5$ $y = 6.75(10) + 5.5 = 67.5 + 5.5 = 73$ ✓

$y = 6.75(1) + 5.5 = 6.75 + 5.5 = 12.25$ ✓

---

7 The slope of the line that passes through the points $(-6, w)$ and $(-10,4)$ is $\frac{1}{8}$. What is the value of w?

A 36

B 34

(C) $\frac{9}{2}$

D $\frac{1}{2}$

$m = \frac{(4) - (w)}{(-10) - (-6)}$

$\frac{1}{8} = \frac{4-w}{-10+6}$

$-4\left(\frac{1}{8}\right) = \left(\frac{4-w}{-4}\right)(-4)$

$(-2)\left(-\frac{1}{2}\right) = (4-w)(-2)$

$1 = -8 + 2w$

$+8 \quad +8$

$\frac{9}{2} = \frac{2w}{2}$

$\frac{9}{2} = w$

x-int, $y = 0 \Rightarrow f(x) = 0$

8 What is the zero of $r(x) = \frac{8}{3}x - 16$?

F -16

G -6

(H) 6

J 16

$0 = \frac{8}{3}x - 16$

$+16 \quad +16$

$3(16) = \left(\frac{8}{3}x\right)3$

$\frac{48}{8} = \frac{8x}{8}$

$6 = x$

m

9 Which representations have the same rate of change of y with respect to x as the equation $3x + 5y = 15$?

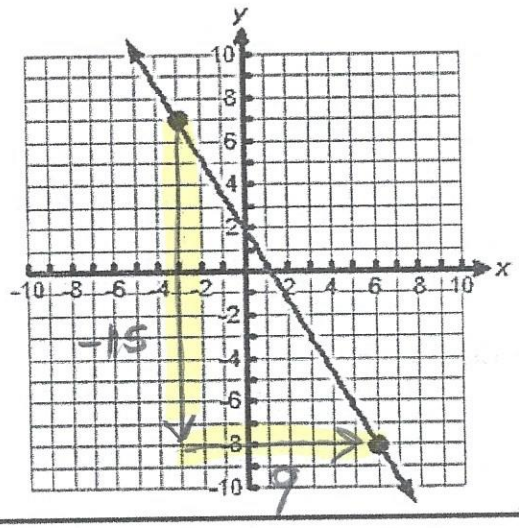
I. ✓

$$y = \frac{3}{5}x + 2$$

II. ?

$$y + 7 = -0.6(x - 4)$$

III. X



$m = -\frac{15}{9}$

$m = -\frac{5}{3}$

IV. ✓

x	y
-15	5
-10	2
-5	-1
0	-4
5	-7
10	-10

→ →

$\frac{(-1) - (-4)}{(-5) - (\phi)}$

$= \frac{-1+4}{-5}$

$= \frac{3}{-5}$

$= -\frac{3}{5}$

$3x + 5y = 12$

$-3x \quad -3x$

$\frac{5y}{5} = \frac{-3x}{5} + \frac{12}{5}$

$y = -\frac{3}{5}x + \frac{12}{5}$

m

A II and IV only ✓

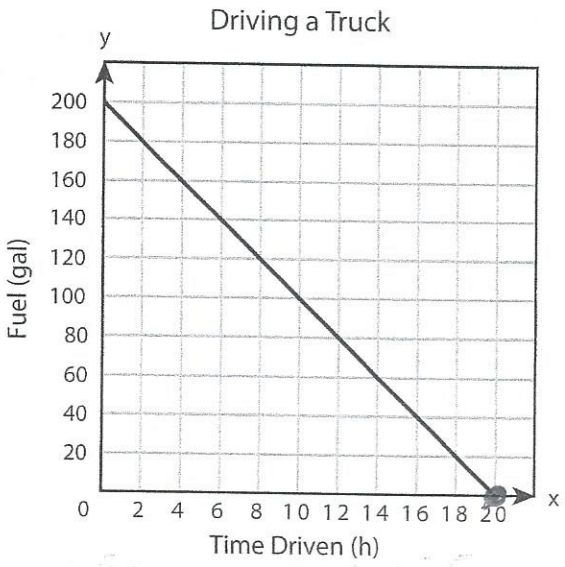
B I, II, and IV only ✓

C II, III, and IV only

D I, II, III, and IV ✓

10 The graph below shows the relationship between the number of gallons of fuel remaining in a truck and the number of hours the truck has been driven.

x-int
(20, 0)
hrs gal



What does the x-intercept of the graph represent?

F The number of gallons of fuel in the truck before any driving occurred

G The number of hours the truck was driven before running out of fuel

H The number of gallons of fuel the truck can hold

J The number of hours required to use one gallon of fuel

---

11 What is the solution set for $-4x + 10 \geq 5x + 55$?

A $x \geq 5$

B $x \geq 45$

C $x \leq -5$

D $x \leq -45$

$-4x + 10 \geq 5x + 55$
$+4x \quad +4x$
$10 \geq 9x + 55$
$-55 \quad -55$
$\frac{-45}{9} \geq \frac{9x}{9}$
$-5 \geq x$
$x \leq -5$

12 Evaluate the function,

$f(x) = 3x + 1$, for $f\left(-\frac{2}{3}\right)$.

$f(x), x = -\frac{2}{3}$

F 3

G 7

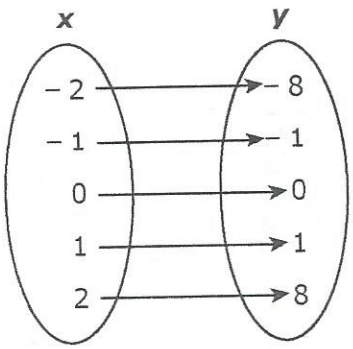
H -1

J $-\frac{5}{9}$

$f(-\frac{2}{3}) = 3(-\frac{2}{3}) + 1$
$= -2 + 1$
$= -1$

13 Which representation does not show y as a function of x?

Function **A**

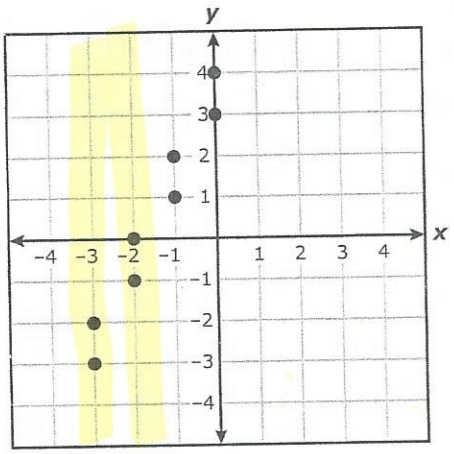


Function **B** {(-1, -2), (0, 1), (2, 4), (7, 7)}

Function **C**

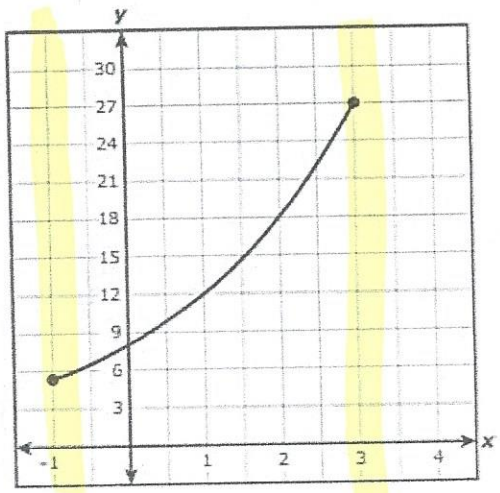
x	y
2	-6
5	-1
7	-1
8	3

Not A Function **D**



Fails VLT

14 What appears to be the domain of the part of the exponential function graphed on the grid?



Low ↓ High ↓

$-1 \leq x \leq 3$

↑ Solid circle

F $-1 \leq x \leq 3$

G $-1 \leq y \leq 3$

H $5.3 \leq x \leq 27$

J $5.3 \leq y \leq 27$

15 What is the equation of the line that passes through the point (-2, 7) and has a slope of zero?

$\emptyset$ → $y = mx + b$

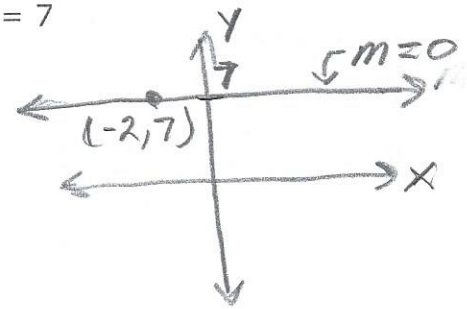
$y = b$

A x = 7

B y = -2

C x = -2

D y = 7



16 Determine the slope of the line that passes through the points $M(-3, 5)$ and $N(1, 8)$. Represent the slope in decimal form.

.75

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

17 The equations below are representations of linear equations in two variables.

m

I. $y = -\frac{2}{3}x + 4$

II. $y - 2 = \frac{2}{3}(x - 9)$

III. $2x + 3y = 12$

Which linear equation(s) in two variables has a graph that passes through the point $(9, -2)$ and has a slope of $-\frac{2}{3}$?

A I, II, and III

B I and II only

C I and III only

D II and III only

III $2x + 3y = 12$

$-2x \quad -2x$

$\frac{3y}{3} = \frac{-2x}{3} + \frac{12}{3}$

$y = -\frac{2}{3}x + 4$

#16 $m = \frac{(8) - (5)}{(1) - (-3)}$

$m = \frac{3}{1+3} = \frac{3}{4} = .75$

18 Linear function $f(x)=x$ is graphed on a coordinate plane. The graph of a new line is formed by changing the slope of the original line to $\frac{2}{3}$ and the y-intercept to 4. Which statement about the relationship between these two graphs is true?

F The graph of the new line is steeper than the graph of the original line, and the y-intercept has been translated down.

G The graph of the new line is less steep than the graph of the original line, and the y-intercept has been translated up.

H The graph of the new line is steeper than the graph of the original line, and the y-intercept has been translated up.

J The graph of the new line is less steep than the graph of the original line, and the y-intercept has been translated down.

$f(x) = x$

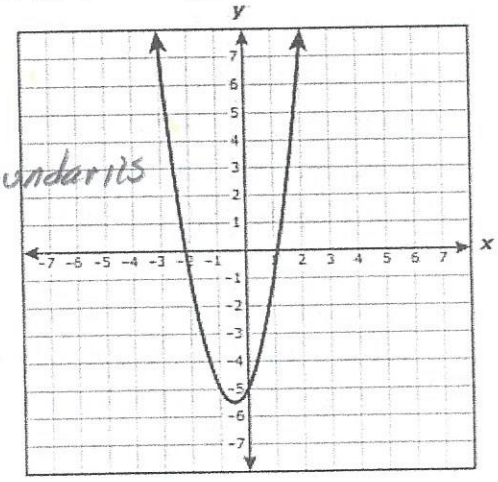
$m = 1, \; b = 0$

$g(x) = \frac{2}{3}x + 4$

$m = \frac{2}{3} \quad b = 4$

- slope chg $1 \to \frac{2}{3}$, less steep
- y-int chg $0 \to 4$, shifts up 4

19 The graph of quadratic function f is shown on the grid.



No X-boundaries
$X \in \mathbb{R}$

Which of these best represents the domain of f?

X ⇒

A $-3 \leq x \leq 2$

B All real numbers

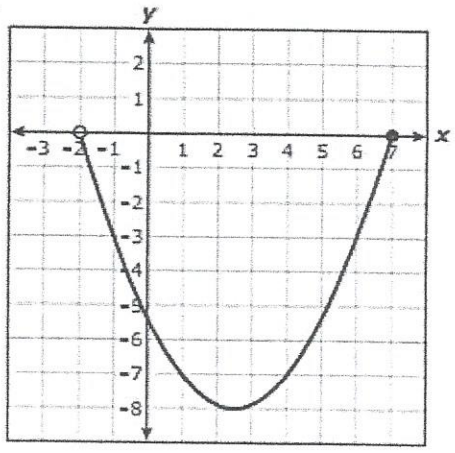
C $y \geq 5.5$

D All real numbers less than -3 or greater than 2

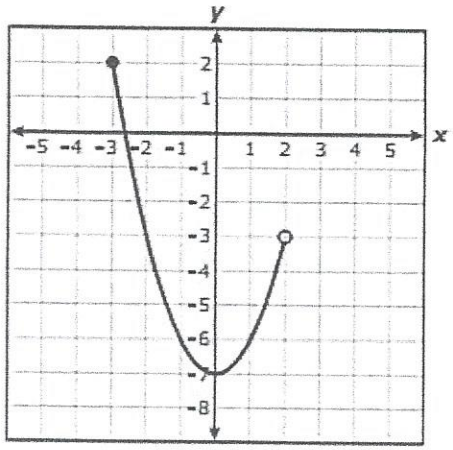
20 Which graph represents a function with a domain of all real numbers greater than or equal to -7 and less than 2?

X

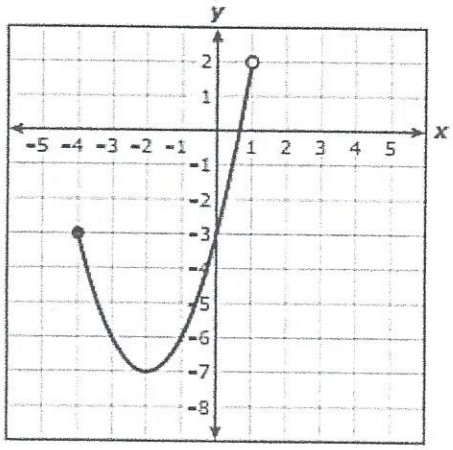
F



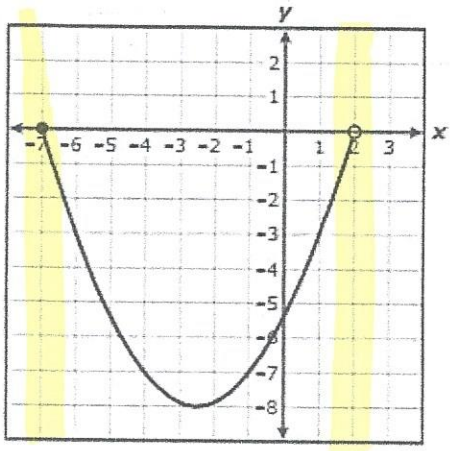
G



H



J



$-7 \leq x < 2$

↑ solid circle

↑ open circle