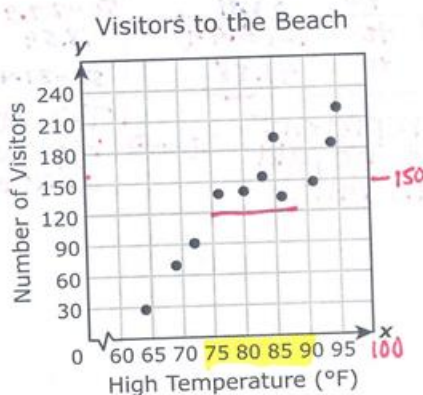


STAAR 2015

DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

- 1 The scatterplot shows the number of visitors to a beach each day and the high temperature in degrees Fahrenheit for that day.



Based on this scatterplot, which statement appears to be true?

- A There is a nonlinear correlation between the high temperature and the number of visitors to the beach. *never really talk about this so I wouldn't guess it.*
- B When the high temperature is above 100°F, fewer than 150 visitors are expected at the beach. *NO, way to low for the trend*
- C There is no correlation between the high temperature and the number of visitors to the beach. *There is a positive correlation, no correlation would look like*
- ☒ D When the high temperature is between 75°F and 90°F, more than 120 visitors are expected at the beach. *yes b/c all points are above 120 for temps b/w 75° and 90°*

- 2 A man bought x boxes of doughnuts for \$3.49 each. He paid with a \$50 bill and received the correct amount of change. If he received more than \$10 but less than \$20, which inequality represents the number of boxes of doughnuts he could have bought?

F $9 \leq x \leq 11$

G $8 \leq x \leq 12$

H $8 \leq x \leq 11$

J $9 \leq x \leq 12$

Change had to be b/w 10 & 20

Boxes x	Change y
7	25.57
8	22.08
9	18.59
10	15.10
11	11.61
12	8.12

1 ways to do this

9(3.49)	to	11(3.49)
31.41	to	38.39
8(3.49)	to	12(3.49)
27.92	to	41.88
8(3.49)	to	11(3.49)
27.92	to	38.39
9(3.49)	to	12(3.49)
31.41	to	41.88

His change

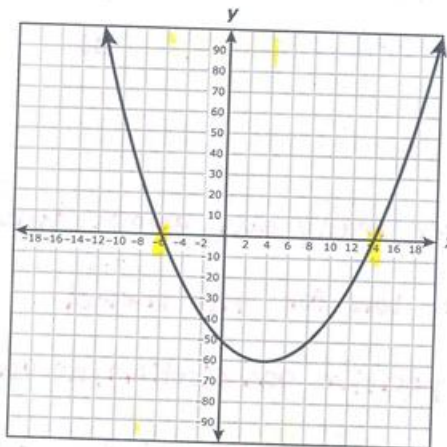
18.59	to	11.59
50-31.41	to	50-38.39
22.08	to	8.12
50-27.92	to	50-41.38
22.03	to	11.51
50-27.97	to	50-38.49
18.59	to	8.12
50-31.41	to	50-41.88

Change (S) b/w 10 & 20
Change not b/w 10 & 20
Change not b/w 10 & 20
Change not b/w 10 & 20

This represents what he paid so $\rightarrow$ (His bill)

This would be his change of giving a \$50 bill

- 3 The graph of quadratic function r is shown on the grid.



What is a solution to $r(x) = 0$?

A -50

B 4

C 14

D -60

Solutions to a quadratic are always the x-intercept

- 4 The function $y = 6 + 1.25x$ can be used to find the cost of joining an online music club and buying x songs from the website. Based on this information, which statement about the graph of this situation is true?

- F The y-intercept of the graph represents the cost of each song. *no the slope is the cost of each song (\$1.25)*
- G The y-intercept of the graph represents the cost of joining the music club. *yes, b/c the starting cost is \$6*
- H The slope of the graph represents the total number of songs bought by members of the club. *no the slope is 1.25, the total # of songs is represented by x*
- J The slope of the graph represents the number of songs each member buys when visiting the website. *no the slope is the cost per song, which is \$1.25*

use the table $y =$

- 5 The first five figures in a pattern are shown below. Each figure is made up of identical circles.



Figure 1



Figure 2



Figure 3

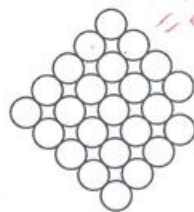


Figure 4



Figure 5

If the pattern continues, which expression can be used to find the number of circles that make up Figure n ?

A $n^2 + 2n$

B $n^2 + 2$

C $2n^2 + 1$

D $2n^2 + n$

*even though these are not
 $y =$ ALL patterns and
sequences*

- 6 One wall inside a shoe store is used to display walking shoes and running shoes. There are 135 pairs of shoes in this display. There are 1.5 times as many pairs of walking shoes as there are running shoes on display. How many pairs of walking shoes and running shoes are on display?
- F 90 pairs of walking shoes and 45 pairs of running shoes
- G 54 pairs of walking shoes and 81 pairs of running shoes
- H 45 pairs of walking shoes and 90 pairs of running shoes
- J 81 pairs of walking shoes and 54 pairs of running shoes

write a system - must write

① $W + r = 135$

$W = 1.5r$

② Two options

Ⓐ plug in your answer choices to $W + r = 135$
 $W = 1.5r$

Ⓕ $90 + 45 = 135$ ✓ yes

$90 = 1.5(45)$ no

Ⓖ $54 + 81 = 135$ ✓ yes

$54 = 1.5(81)$ no

Ⓗ $45 + 90 = 135$ ✓ yes

$45 = 1.5(90)$ no

Ⓙ $81 + 54 = 135$ ✓ yes

$81 = 1.5(54)$ ✓ yes

solve the system by graphing

$W + r = 135$ $y + x = 135 \rightarrow y = -x + 135$
 $W = 1.5r \rightarrow y = 1.5x$ then find intersection

Ⓑ solve the system by substitution

$W + r = 135$

$W = 1.5r$

substitute one equation into the other

$1.5r + r = 135$

$2.5r = 135$
 $\frac{2.5r}{2.5} = \frac{135}{2.5}$

$r = 54$

$W = 1.5r$

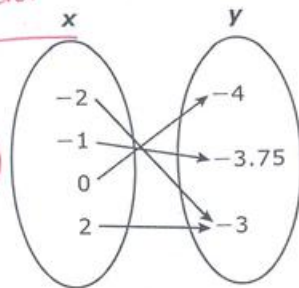
$W = 1.5(54)$

$W = 81$

- 7 The mapping below represents y as a quadratic function of x .

write as order pairs

$(-2, -3)$
 $(-1, -3.75)$
 $(0, -4)$
 $(2, -3)$



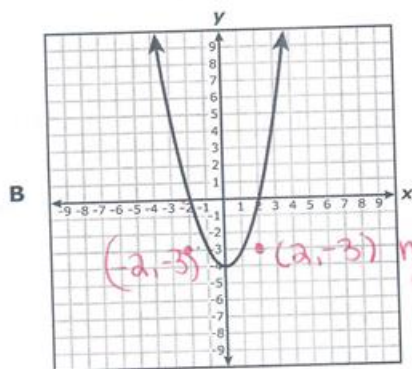
notice quadratic if you stat this make sure you stat a quadratic #5 and not a linear #4

Which representation shows the same relationship between x and y ?

A

x	y
-3	1.75
0	-4
1	3.75
3	1.75

C $\{(-4, -6), (-2, -3), (0, -4), (1, -3.75)\}$



D $y = 0.25x^2 - 4$

look in table in calculator and they match

x	y
-2	-3
-1	-3.75
0	-4
2	-3

not on graph, but up as a point so can't be it

- 8 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 ?

F 36

G 34

H $\frac{9}{2}$

J $\frac{1}{2}$

2 ways to do this

① use your answer choices to stat

F 36

$(-6, w)$ and $(-10, 4)$

$(-6, 36)$ and $(-10, 4)$

Then stat it and

$m = 10$ not $\frac{1}{8}$

G 34

$(-6, w)$ and $(-10, 4)$

$(-6, 34)$ and $(-10, 4)$

Then stat d $m = 7.5$ not $\frac{1}{8}$

H $\frac{9}{2}$

$(-6, w)$ and $(-10, 4)$

$(-6, \frac{9}{2})$ and $(-10, 4)$

Then stat d $m = 0.125 = \frac{1}{8}$

J $\frac{1}{2}$

$(-6, w)$ and $(-10, 4)$

$(-6, .5)$ and $(-10, 4)$

Page 14 Then stat d $m = -0.75 = -\frac{3}{4}$ not $\frac{1}{8}$

on ② use the slope form to solve

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$(-6, w)$ and $(-10, 4)$ $m = \frac{1}{8}$

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

$$\frac{1}{8} \neq \frac{4 - w}{-4} \quad (\text{Cross multiply})$$

$$8(4 - w) = -4$$

$$32 - 8w = -4$$

$$-32$$

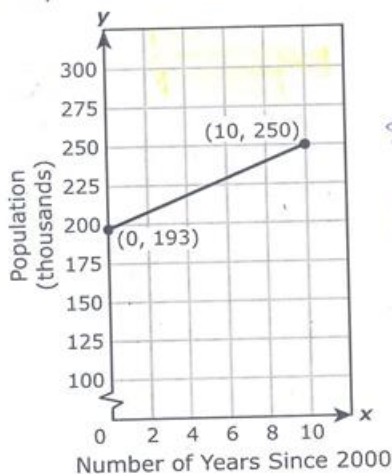
$$-8w = -36$$

$$w = 4.5 = \frac{9}{2}$$

GO ON

- 9 The population of Webb County, Texas, from the year 2000 through 2010 is shown in the graph.

Population of Webb County, Texas



STAT This to get equation then look in table

$$y = 5.7x + 193$$

If the trend shown in the graph continues, what will be the population of Webb County in 2015?

A 307,000

B 278,500

C 471,500

D 158,000

when you look in the table you are NOT looking for 2015, but 15 because the years started in 2000, so 2015 would be 15 years later

years	population in thousands
x	y
14	272.8
15	278.5
16	284.2

- 10 A city employee paints curbs in parking lots and replaces road signs. It takes 0.5 hour to paint a parking lot curb and 2.5 hours to replace a road sign. The function below can be used to find c , the number of parking lot curbs the employee paints when he replaces r road signs in a 40-hour workweek.

$y =$ LOOK in the table b/c you have an equation

$$c = \frac{40 - 2.5r}{0.5}$$

it must go in the calculator like this $\rightarrow$

$$y = \frac{(40 - 2.5x)}{0.5}$$

If the employee painted 20 curbs in one week, how many road signs did he replace that week?

F 20

G 30

H 0

J 12

Just be careful, you are looking for 20 curbs, c and c is your " y " in this equation

x	y
11	25
12	20
13	15

- 11 Customers at a bank are charged a fee when they exchange U.S. dollars for foreign currency. The function $f(x) = 78.5x - 392.5$ can be used to determine the number of Japanese yen a customer receives in exchange for x dollars, where $x > 5$. Which table shows this relationship?

$y =$ again and look in table, you will have to use the table set (2nd window) to jump thru your calculator faster

A

U.S. Dollars Exchanged	Japanese Yen Received
50	4,317.5
75	6,280
120	9,812.5
185	14,915

C

U.S. Dollars Exchanged	Japanese Yen Received
50	3,532.5
85	6,280
120	9,027.5
200	15,307.5

B

U.S. Dollars Exchanged	Japanese Yen Received
65	5,102.5
80	6,280
100	7,850
125	9,812.5

D

U.S. Dollars Exchanged	Japanese Yen Received
10	3,140
25	7,850
30	9,420
45	14,130

- 12 A rectangular prism has a width of x inches, a length of x^2y inches, and a height of y^2 inches. Which expression represents the volume in cubic inches of this rectangular prism?

F $4x^2y^2$

G $4x^3y^3$

H x^2y^2

J x^3y^3

Remember that volume is 3-dimensional
so you have to multiply 3 dimensions
together (this is if you forget the
formula)

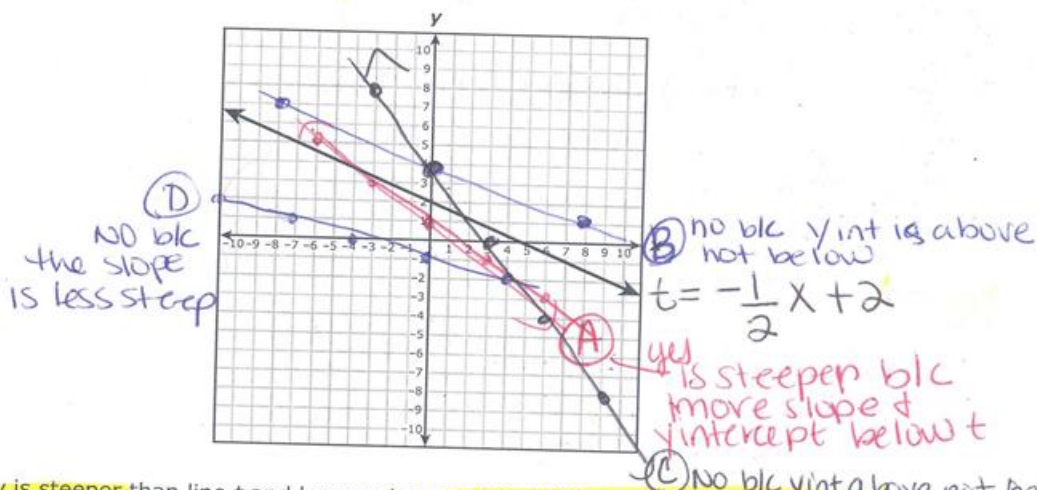
$$V = Bh$$

$$V = lwh$$

$$V = x \cdot x^2y \cdot y^2 \text{ (add the exponents)}$$

$$V = x^3y^3$$

- 13 The graph of line t is shown on the grid.



Line w is steeper than line t and has a y -intercept that is below the y -intercept of line t . Which function could be represented by line w ?

A $y = -\frac{2}{3}x - 1$

B $y = -\frac{3}{8}x + 4$

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

D $y = -\frac{1}{4}x - 1$

notice that they graphed line t for you NOT line w , you will have to do that yourself be it by hand or in the calculator you would need to write the equation for t to put in calculator though

- 14 A senior employee who works 16 hours earns \$39.50 more than a junior employee who works 18 hours. The senior employee earns \$14 per hour. What is the hourly pay in dollars and cents for the junior employee?

Record your answer and fill in the bubbles on your answer document.

This is worded weird, I had to read it 5 times to comprehend. You are looking for how much the junior employee makes per hour. It only tells you how much he works, not his hourly pay. It does tell you he makes 39.50 less than the senior, so if you figure out the senior first that will guide you to the junior.

① Figure out the senior $S = 14 \times 16$ (senior makes \$14 an hour & he works 16 hours)
 $S = 14(16)$
 $S = 224$, so the senior makes \$224 dollars

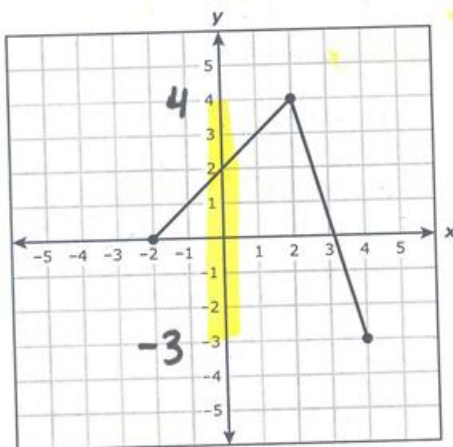
② It says the senior makes \$39.50 more than the junior so you take 39.50 less than the seniors so... $224 - 39.50 = 184.50$. So the junior makes \$184.50 total, but that is in 18 hours & they want his hourly rate so now you have to divide \$184.50 by 18 $\frac{184.50}{18} = 10.25$

- 15 In three different workouts a runner burned 300 calories in 30 minutes, 350 calories in 35 minutes, and 200 calories in 20 minutes. Based on the data, which statement is true if the number of calories burned is a function of the number of minutes the runner worked out?

- A The number of minutes the runner worked out is the dependent quantity. *time does not depend on a runner's calories*
- B The number of workouts the runner completed is the dependent quantity. *workouts completed is not a variable in this problem*
- C The number of calories burned is the dependent quantity.
- D The number of steps the runner takes is the dependent quantity. *nothing to do with the problem, not a variable*

→ # of calories ^{burned} depends on how many minute you have been running

- 16 What is the range of the function graphed on the grid?



- F $\{x \mid x = -2, 2, 4\}$
- G $\{y \mid -3 \leq y \leq 4\}$
- H $\{x \mid -2 \leq x \leq 4\}$
- J $\{y \mid y = -3, 0, 4\}$

* Draw a possible graph, remember you have graph paper.

- 17 Points (3, 2) and (7, 2) are on the graphs of both quadratic functions f and g . The graph of f opens downward, and the graph of g opens upward. Which of these statements are true?

- I. The graphs of f and g have the same axis of symmetry.
 II. The graphs of f and g have the same x -intercepts.
 III. The graph of f has a maximum point, and the graph of g has a minimum point.
 IV. The graph of f is the result of a reflection of the graph of g across the x -axis.

A I only

B II only

C II and IV

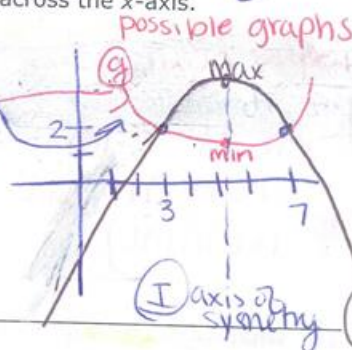
D I and III

II no b/c g does not even hit the x axis

III yes b/c f opens down so it has a maximum, g open up so min.

IV NO that is not a reflection

I yes, would have to have the same symmetry



- 18 A scientist needs to print a research report on her computer's printer. If she prints in black ink only, $b(t) = 152 - 33t$ describes the number of pages left to print after t minutes. If she prints in colored ink, $c(t) = 152 - 30t$ describes the number of pages left to print after t minutes. Based on this information, which statement is true?

F The printer prints 3 more pages per minute in colored ink than in black ink.

G The printer prints 3 fewer pages per minute in colored ink than in black ink.

H The printer prints the same number of pages per minute in either type of ink.

J The printer prints the entire research report in 152 minutes.

The slope, m , is what is different black is -33 per minute and colored is -30 per minute

Black is printing 33 pages per minute, colored is printing 30 pages per minute. So the black is printer faster by 3 pages

- 19 Which expression is equivalent to $2m\left(\frac{3}{2}m + 1\right) + 3\left(\frac{5}{3}m - 2\right)$?

A $3m^2 + 5m - 1$

B $\frac{3}{4}m^2 + \frac{23}{9}m - 6$

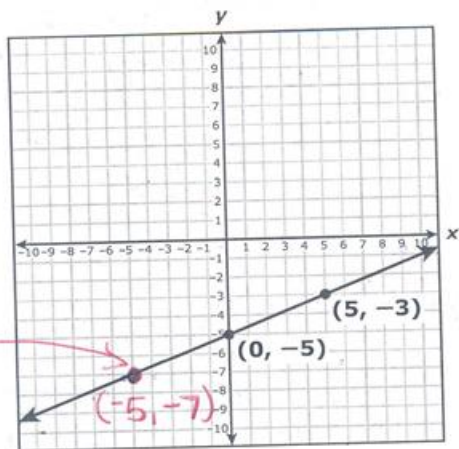
C $3m^2 + 7m - 6$

D $\frac{3}{4}m^2 + \frac{5}{9}m - 1$

$$3m^2 + 2m + 5m - 6$$

$$3m^2 + 7m - 6$$

- 20 The graph of an equation in the form $y = mx + b$ is shown on the grid.



Based on the graph, what is the value of x when $y = -7$?

$x = -5$

Record your answer and fill in the bubbles on your answer document.

2 ways

1 way - go look at your graph and find where $y = -7$

2nd way - go start it and look in the table for $y = -7$ and find the matching

x	y
-5	-7

$y = 0.4x - 5$ or $y = \frac{2}{5}x - 5$

- 21 When a contractor paints a square surface that has a side length of x feet, he needs to know the area of the surface in order to buy the correct amount of paint. Since the contractor always adds 25 square feet to the area, he buys extra paint. Which function can be used to find the total area in square feet, $A(x)$, that the contractor will use to determine how much paint he needs to buy?

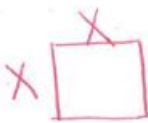
Draw a picture

A $A(x) = 25x^2$

B $A(x) = (25 + x)^2$

C $A(x) = (25x)^2$

D $A(x) = x^2 + 25$



$A = lw$

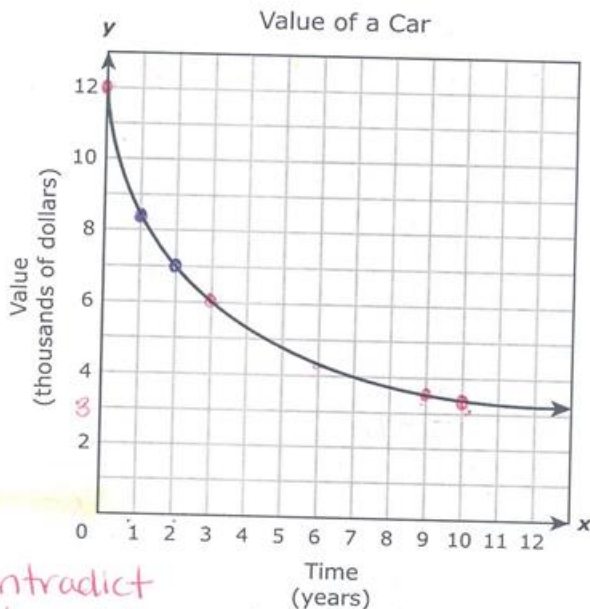
$A = x \cdot x$

$A = x^2$

then it says he adds 25 sq.ft to the area so

$A = x^2 + 25$

- 22 The graph below shows the change in the value of a car over several years.



Check H & J
 First since they contradict
 each other, one is bound to be the answer

Based on the information in the graph, which conclusion appears to be true?

- F The car lost about one-half of its value every 3 years. *The first 3 years it lost 1/2 its value but not true at the last 3 years*
- G The car lost about one-quarter of its value every year. *use b/c the first year it works like that but not towards the end*
- H The car lost less of its value between years 9 and 10 than between years 1 and 2. *about 100, not much*
- J The car lost more of its value between years 9 and 10 than between years 1 and 2. *lost about 1000 about 100, much lost about 1000*

2 ways

- 23 What is the equation in standard form of the line that passes through the point (4, -8) and has a slope of $\frac{1}{4}$?

2nd way
 plug in
 your
 point

(4, -8)
 x y

into
 each
 equation

and see if it works

A $x - 4y = 36$

B $x - 4y = 28$

C $x - 4y = -36$

D $x - 4y = -28$

1st way

$y = \frac{1}{4}x - 9$

$y = \frac{1}{4}x - 7$

$y = \frac{1}{4}x + 9$

$y = \frac{1}{4}x + 7$

then look in the table for
 the point (4, -8)
 for each equation

$$s = 30 + m$$

- 24 A new spiral notebook contains 30 more sheets of paper than a new memo book. The total number of sheets of paper in 3 new spiral notebooks and 5 new memo books is 810. Which system of equations can be used to find s , the number of sheets of paper in one new spiral notebook, and m , the number of sheets of paper in one new memo book?

F $s - m = 30$

$3s + 5m = 810$

G

$s + m = 30$ *not a match*

$3s + 5m = 810$

H

$s - m = 30$

$5s + 3m = 810$ *doesn't match*

J

$s + m = 30$

$5s + 3m = 810$ *doesn't match*

This is a system, writing 2 equations, in standard form because you have 1 totals. Highlight your 1 total equation & match that up. The other equation is not a total equation, you will have to translate that out, $s = 30 + m$, although none of those match the answer choices b/c they are in standard form, so you will have to rewrite your equation in standard.

$$s = 30 + m$$

$$\begin{array}{r} -m \\ s - m = 30 \end{array}$$

- 25 Which function is equivalent to $f(x) = 6x^2 - 13x + 5$?

① way, use your answer choice's and put

A $f(x) = (3x - 1)(2x + 5)$

$6x^2 + 15x - 2x - 5$

B $f(x) = (3x - 5)(2x - 1)$

$6x^2 - 3x - 10x + 5$

C $f(x) = (3x - 1)(2x - 5)$

$6x^2 - 15x - 2x + 5$

D $f(x) = (3x - 5)(2x + 1)$

$6x^2 + 3x - 10x - 5$

② way - foil all these answer choices and see which is a match

③ way, factor $f(x) = 6x^2 - 13x + 5$ *first & last*

$$(3x - 5)(2x - 1)$$

$-3x - 10x$
 $-13x$

- 26 The average blue whale gains weight at a constant rate each day during its first six months of life. The relationship between the average blue whale's weight in tons, w , and its age in days, d , for the first six months of its life can be modeled by the function $w = 0.1d + 3$. Based on this relationship, which statement is not true for the average blue whale?

F The average blue whale weighs 3 tons at birth.

G When the average blue whale is 5 days old, it weighs 20 tons.

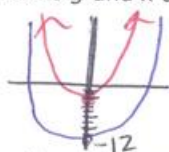
H The average blue whale gains 0.1 ton per day during its first six months of life.

J When the average blue whale weighs 18 tons, it is 150 days old.

↑
You have an equation, look in the table

True, look in table (150, 18)

- 27 Quadratic functions g and k are shown below.



$$g(x) = 5x^2 - 12$$

$$k(x) = 5x^2 + c$$

$$g(x) = 5x^2 - 12$$

$$+ 9$$

$$k(x) = 5x^2 - 3$$

For what value of c will the graph of k be 9 units above the graph of g ?

Record your answer and fill in the bubbles on your answer document.

-3

- 28 A customer pays an annual membership fee of \$85 to a neighborhood car wash. Each time he takes his car to the car wash, he pays only \$7. The total amount of money he spends at the car wash in one year in dollars can be found using the function $y = 7x + 85$. What does the variable x represent in this function? *Look in the table to help interpret. It will also have it in the problem.*

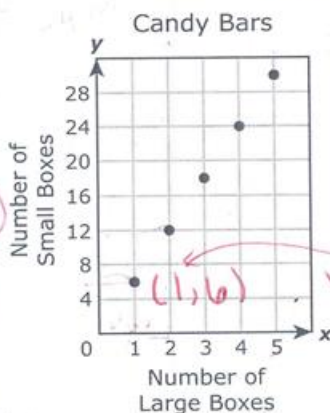
- F The total amount of money the customer spends each month at the car wash
No, this is the y
- G The number of months the customer has been a member at the car wash
No, nothing to do with the problem
- H The number of times the customer takes his car to the car wash in one year
yes, 1 visit, 2 visit, 3 visits, etc
- J The cost each time the customer takes his car to the car wash
No, that would be the y

x	y
0	85
1	92
2	99

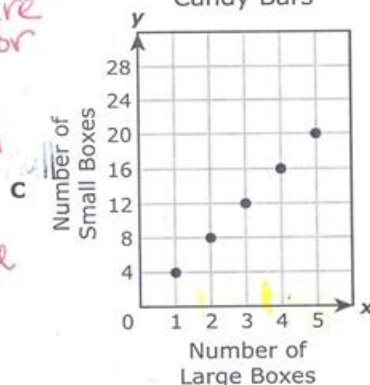
1 visit, cost \$92
 2 visits, cost \$99

- 29 The owner of a store buys large boxes of candy bars from a warehouse and repackages them to sell in smaller boxes in his store. The store owner packages 4 candy bars in each small box. Each large box contains 24 candy bars. Which graph represents the relationship between x large boxes and y small boxes?

1 large box contains 24 candy bars but 6 small boxes contain 24 candy bars so you are looking for

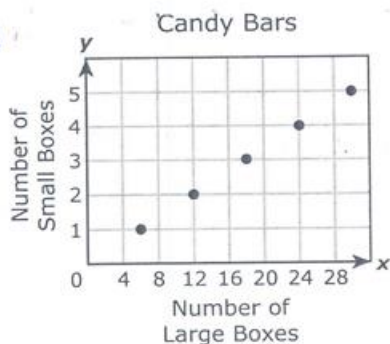


yes 1 large box to 6 small boxes



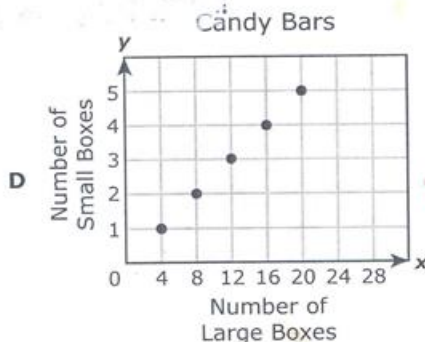
$y = 4x$

x	y
24	96



$y = .16x$

x	y
24	6



$y = .25x$

x	y
24	6

$$y = 0.8x^2$$

- 30 The function $L = 0.8T^2$ models the relationship between L , the length in feet of a pendulum, and T , the period in seconds of the pendulum. Which value is closest to the period in seconds for a pendulum that is 30 ft long?

F 5.4 s

G 4.9 s

H 6.8 s

J 6.1 s

you have an equation, look in the table

Careful $l = \text{length } (y)$

$T = \text{seconds } (x)$

30 ft = length so when you look in the table you are looking for 30 on the y side, you will have to use the table set (2nd window) to look at the decimals in the table.

- 31 Airline passengers pay \$439 to fly to California. For this price, customers may check 2 pieces of luggage. There is a fee of \$25 for each additional piece of luggage a passenger wants to check. Which function can be used to find the amount in dollars a passenger has to pay to fly with p pieces of luggage, where $p \geq 2$?

A $c = 25p + 439$

This does not take the first two pieces

B $c = 25(p - 2) + 439$

\$25 for each piece but - off the first 2 b/c they

C $c = \frac{p}{25} + 439$

begin at 439 b/c they don't charge for those 2

D $c = \frac{p-2}{25} + 439$

put each one into $y =$ and look in the table and see which one matches your info. Remember that the domain in the table they said to look at $p \geq 2$

So look at 2 and up.

2 pieces of luggage still only cost \$439 because the first 2 are free, but after ~~the~~ 2 it is \$25 each so the table would look like

$$\begin{array}{r|l} 2 & 439 \\ 3 & 464 \\ 4 & 489 \end{array} \begin{array}{l} \\ +25 \\ +25 \end{array}$$

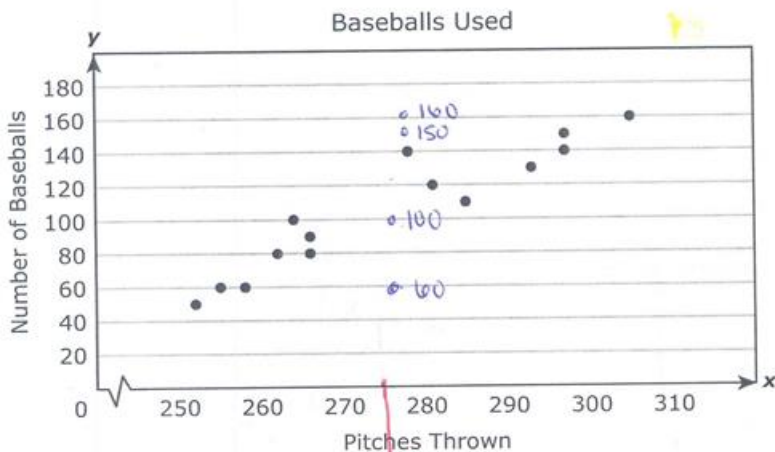
- 32 There are 32 founding members of an organization. The function $y = 3x^2 + 32$ can be used to determine the number of members in the organization after x months. Based on this function, which statement is true? *equation, look in table*

- F The number of members in the organization increases by 9 members each month.
 G At the end of 16 months, there will be 288 members in the organization. *not increasing by 9 per month (not linear either)*
 H The number of members in the organization increases by 3 members each month. *NO (16, 800)*
 J At the end of 6 months, there will be 140 members in the organization. *NO, just 1st month did that... increased by 3 but not after*

x	y
0	32
1	35
2	44
3	59
4	80
5	107
6	140
16	800

(6, 140) in table

- 33 The scatterplot below shows the relationship between the number of baseballs used in 14 games and the number of pitches thrown in these games.



Based on the scatterplot, what is the best prediction of the number of baseballs that will be used if 275 pitches are thrown?

- A 150 *too high*
 B 60 *too low*
 C 100 *Just right, fits data well*
 D 160 *too high*

- 34 A plane can carry a maximum cargo weight of 160,000 pounds. A company uses one of these planes to ship 2,000-pound containers. The total cargo weight is a function of the number of containers in the plane. What is the greatest value in the domain for this situation?

Record your answer and fill in the bubbles on your answer document.

To find the domain "x", easiest to write the equation first and look in table to see what your "x" could be

F.I. "x" means containers, so they are asking for the greatest value of containers
 $y = -2000x + 160000$

Greatest # of containers "x" the domain is 80

x	y
-1	162000
0	160000
1	158000
2	156000
...	...
79	2000
80	0
81	-2000

← can't have a negative # of containers
 you will have to start using table to jump thru your table

← can't have a negative weight, therefore you cannot have 81 containers

- 35 What is the value of x in the solution to this system of equations?

put both y = equations into the calc., then 2nd Trace, #5 intersect enter, enter, enter

$$3x = 2y + 14 \rightarrow y = \frac{3}{2}x - 7$$

$$y = -6x + 18$$

A $\frac{10}{3}$

B -2

C 2

D $-\frac{10}{3}$

This is a system, the easiest way to solve a system is to find the intersection. So you will need to y = the equation

$$\begin{array}{r} 3x = 2y + 14 \\ -14 \\ \hline 3x - 14 = 2y \end{array}$$

$$\frac{3x - 14}{2} = \frac{2y}{2}$$

$$\frac{3}{2}x - 7 = y$$

$$y = \frac{3}{2}x - 7$$

OR $3x = 2y + 14$

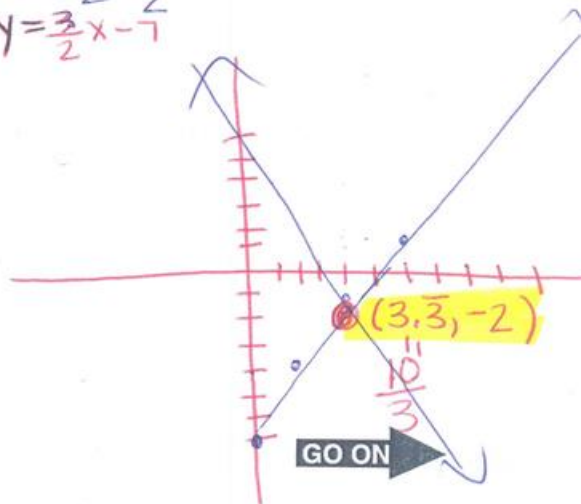
$$2y + 14 = 3x$$

$$\begin{array}{r} -14 \\ \hline 2y = 3x - 14 \end{array}$$

$$\frac{2y}{2} = \frac{3x - 14}{2}$$

$$y = \frac{3}{2}x - 7$$

unfortunately you cannot plug in your answer choices b/c you only have the x but not the y.



- 36 The table represents some points on the graph of linear function g .

$g(x) = -1.25x + 8$
then $h(x)$
is down -10 so you
do $g(x) = -1.25x + 8$
-10

$$h(x) = -1.25x - 2$$

x	$g(x)$
-4	13
-2	10.5
2	5.5
8	-2

you will need to start this
to write the equation for g
so that you can then translate
(or move) the
down 10 to get the equation
for h

then go put them in the calculator & compare them

The graph of g was translated down 10 units to create the graph of function h . Which statement comparing the graphs of g and h is true? *make sure you distinguish which line is which.*

F The x-intercept of the graph of g is 10 units to the right of the x-intercept of the graph of h . *no, it's 8 units*

G The graph of g is steeper than the graph of h . *no, they are parallel*

H The y-intercept of the graph of g is 10 units above the y-intercept of the graph of h . *yes, it is 10 units*

J The graph of g is less steep than the graph of h . *no they are parallel*

- 37 What are the solutions to the equation $3x^2 + 15x = 18$?

A $x = -3$ and $x = -2$

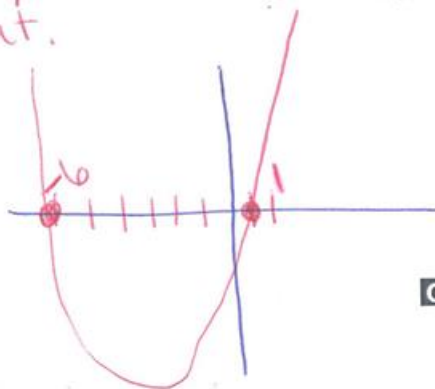
B $x = -6$ and $x = 1$

C $x = 6$ and $x = 13$

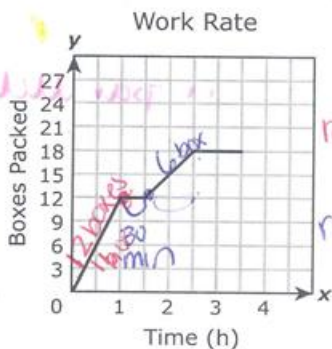
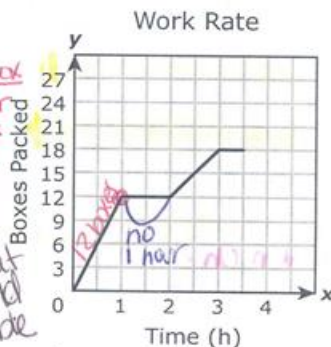
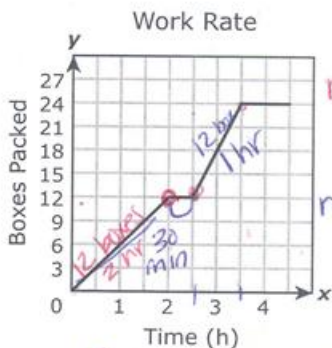
D $x = 0$ and $x = 1$

*solutions to a quadratic
are the x-intercepts so you
could put in the calculator
and find the x-intercepts.
make sure that you make
the equation = 0 before you
do that.*

$$\begin{array}{r} 3x^2 + 15x = 18 \\ -18 \quad -18 \\ \hline 3x^2 + 15x - 18 = 0 \end{array}$$



- 38 A factory worker packed 12 boxes at a constant rate, took a 30-minute break, and then continued packing boxes at twice the rate before the break. The worker then spent 1 hour cleaning the work area. Which graph models this situation?



- 39 The table represents some points on the graph of linear function h .

x	$h(x)$
2	490
5	295
6	230
8	100

Stat this to understand better

$$y = -65x + 620$$

Which situation can be modeled by this function?

- A The cost in dollars of buying x items that cost \$245 each
No, the cost would be \$245 per item
- B The number of miles an airplane had traveled after flying 555 miles per hour for x hours
No, the plane would have traveled 555 miles per hour
- C The remaining number of miles on a 620-mile trip after traveling 65 miles per hour for x hours
Yes b/c eq begins at 620 and changes by 65 per hr
- D The amount owed on a \$555 loan after paying \$65 per month for x months
No, the amount owed would have began at 620 not 555 and paid 65 per month

- 40 Which inequality represents all the values of x for $y \leq -6(x - 18) - 2$ when $y = 46$?

F $x \leq 10$

G $x \leq -11$

H $x \geq -11$

J $x \geq 10$

2 ways

way 1 $46 \leq -6(x - 18) - 2$

$$46 \leq -6x + 108 - 2$$

$$46 \leq -6x + 106$$

$$-106 \leq -6x$$

$$\frac{-106}{-6} \leq \frac{-6x}{-6}$$

$$10 \geq x$$

flip answer around - everything

$$x \leq 10$$

plug in y & solve for x

way 2 - this is $y =$ put in calculator just as you see it and look in the table
 $y \leq -6(x - 18) - 2$

x	y
9	52
10	46
11	40

Don't forget to flip when you divide by a negative

x-intercept

- 41 What is the zero of $r(x) = \frac{8}{3}x - 16$? ← equation, put in calculator

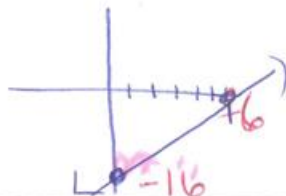
A -16

B 6

C 6

D 16

zero means x-intercept, so look in the calculator



- 42 The cost of parking in the garage at the airport is \$16 per day. A separate parking facility outside the airport charges 25% less per day to park. What would be the savings in dollars and cents of parking for 6 days in the facility outside the airport instead of in the airport garage?

Write equations to put in table for 6 days
Record your answer and fill in the bubbles on your answer document.

$$y_1 = 16x$$

$$y = 12x$$

X	y ₁	y ₂
6	96	72
	96 - 72	

24

- 43 Two functions are given below.

put in y=
at the same time

$$p(x) = \frac{5}{8}x - \frac{3}{11}$$

$$m = 0.625$$

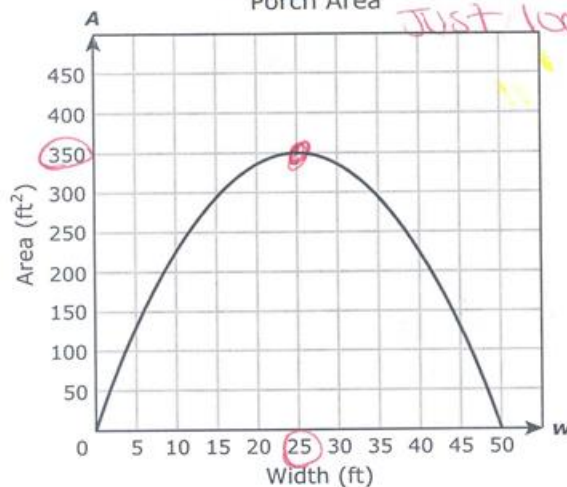
$$q(x) = \frac{8}{5}x - \frac{3}{11}$$

$$m = 1.6$$

How does the graph of p compare with the graph of q ?

- A The graph of p has a different y-intercept than the graph of q . no, the same $(-\frac{3}{11})$
 B The graph of p is less steep than the graph of q . yes, look at the graph & also has less slope, so less steep
 C The graph of p is steeper than the graph of q . no, p has a smaller slope so less steep
 D The graph of p is parallel to the graph of q . no, different slopes so can't be parallel, would need the same slope to be parallel

- 44 The graph models A , the area in square feet of a rectangular porch with a length that is $0.56w$ less than 28 ft given a width of w feet.



Based on the graph, what is the width in feet of the porch with the greatest area?

- F 175 ft
- G 50 ft
- H 25 ft
- J 350 ft

use process of elimination

- 45 The owner of a clothing store buys T-shirts for c dollars each and sells them for p dollars each. Last month she bought 600 T-shirts and sold 500 of them and made a profit of \$2,800. This month she bought 400 T-shirts and sold them all and made a profit of \$2,400. Which system of equations can be used to determine the values of c and p ?

400 bought
so 400
should
be by
the c

A $500p - 600c = 2,800$
 $400p - 400c = 2,400$

> 600 bought (c)
so 600 should
be by the c

500 sold so 500
should be by the p

B $600p - 500c = 2,800$
 $400p - 400c = 2,400$

variable by
wrong #

C $500p - 600c = 2,800$
 $400p - c = 2,400$

no bc 400 is
not by the c

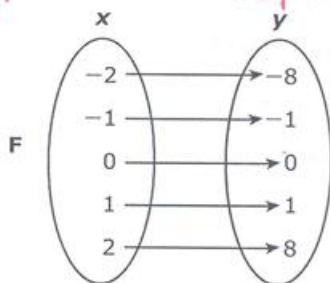
D $600p - 500c = 2,800$
 $400p - c = 2,400$

no variable by
wrong #

c = buys
 p = sells
look at the
first sentence
& define your
variables

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

function - x can't repeat



✓

H

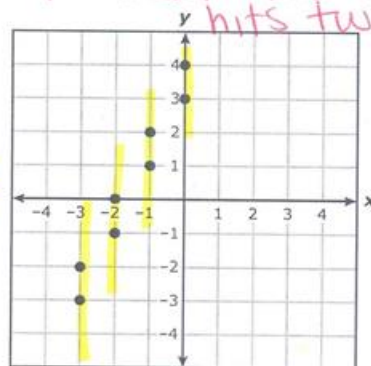
x	y
2	-6
5	-1
7	-1
8	3

✓

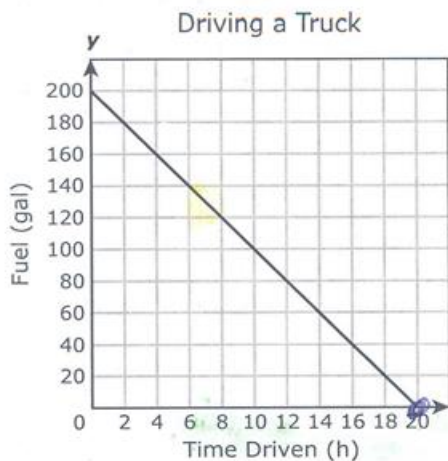
G $\{(-1, -2), (0, 1), (2, 4), (7, 7)\}$

✓

vertical line test
hits twice



- 47 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.



It helps if you label the x-intercept

Time Fuel
x y
(20, 0)
20 hrs, 0 gallons

What does the x-intercept of the graph represent?

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

No that would be the y-intercept
yes, 20 hrs, 0 gallons

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

- C The number of gallons of fuel the truck can hold

No that is not the variables in this problem

- D The number of hours required to use one gallon of fuel

No that would be the slope

- 48 If $f(x) = (x - 3)^2 + 4$ and $g(x) = x^3 + 2$, which statement is true?

you have 2 equations
put them in the calculator

F $f(-2) = g(-3)$
 $29 \neq -25$

G $f(0) = g(-1)$
 $13 \neq 1$

H $f(8) = g(3)$
 $29 = 29$

J $f(2) = g(1)$
 $5 \neq 3$

x	f(x)	g(x)
-3	40	-25
-2	29	-6

(F)

x	f	g
-1	20	1
0	13	2

(G)

x	f	g
3	4	29
8	29	514

(H)

x	f	g
1	8	3
2	5	10

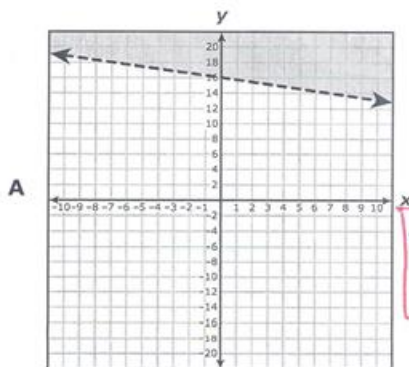
(J)

$f(8) = g(3)$

$f(8)$ is read as the function of 8, so the function of 8 = 29

$g(3)$ is read as the function of 3, so the function of 3 = 29

- 49 Which graph represents the inequality $-2x + 7y \leq 112$?



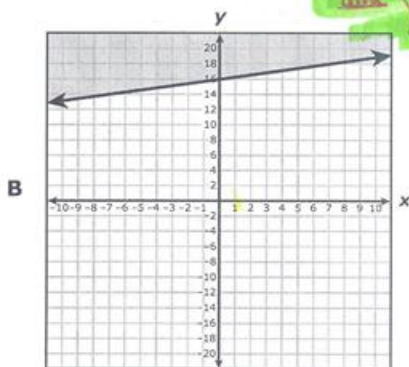
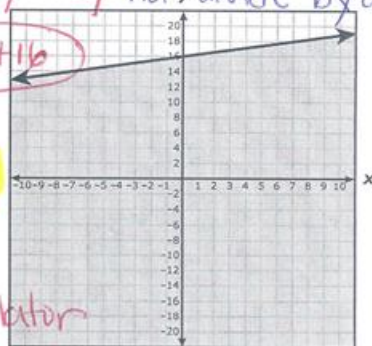
$$\begin{array}{r} -2x + 7y \leq 112 \\ +2x \quad +2x \\ \hline 7y \leq 2x + 112 \\ \frac{7y}{7} \leq \frac{2x}{7} + \frac{112}{7} \end{array}$$

Don't flip you did not divide by a negative

$y \leq \frac{2}{7}x + 16$

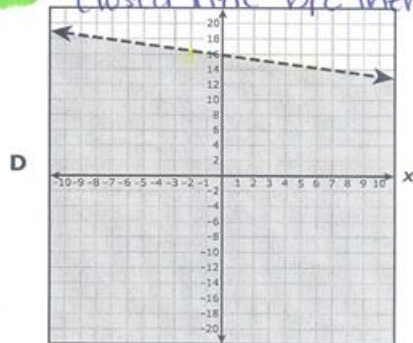
$$y \leq \frac{2}{7}x + 16$$

in calculator



$$y \leq \frac{2}{7}x + 16$$

(less than shade down) closed line b/c there is an equal



- 50 If the value of y varies inversely with x , which function represents the relationship between x and y if $y = 48$ when $x = 3$?

F $y = \frac{144}{x}$

G $y = \frac{16}{x}$

H $y = \frac{x}{16}$

J $y = \frac{x}{144}$

you have equations
so put in calculator
under $y =$ and look
in table

x	y
0	Error
1	144
2	72
3	48

- 51 Function k has a parent function. The table shows some ordered pairs that belong to k .

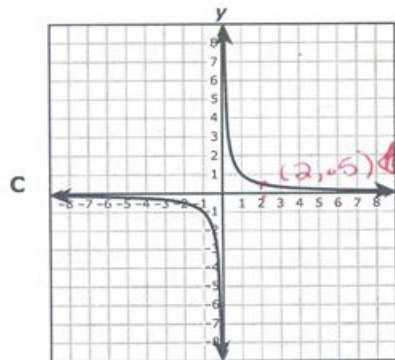
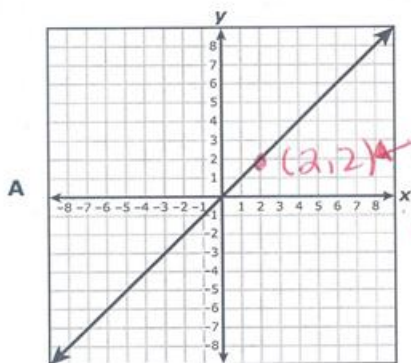


x	$k(x)$
-4	20
-3	13
-1	5
1	5
2	8

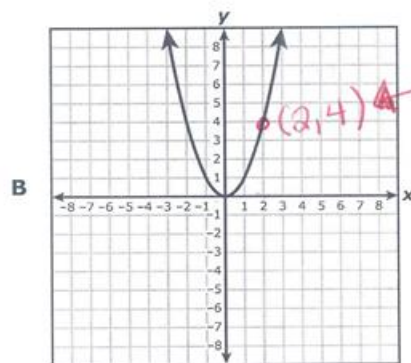
(2, 8)

go match
the order
pairs to the
graph

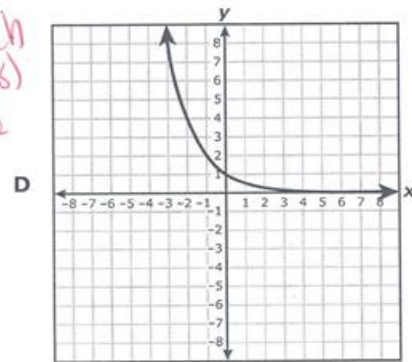
Which graph shows the parent function of k ?



no match
b/c (2,8) is
in the
tube



no match
b/c (2,8)
is in the
table



52 What is the solution to the system of equations below?

intersection

$$\begin{aligned} 4x - 7y &= -2 \\ 12x - 21y &= -42 \end{aligned}$$

$$y = \frac{4}{7}x + \frac{2}{7}$$

$$y = \frac{4}{7}x + 2$$

F The ordered pair $(-\frac{1}{2}, 0)$ is the solution.
no b/c the lines don't intersect

G The ordered pair $(0, \frac{2}{7})$ is the solution.
no b/c the lines don't intersect

H There are an infinite number of solutions.
no, that would be the same line

J There is no solution.
yes

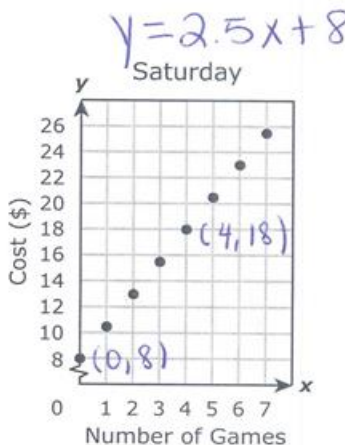
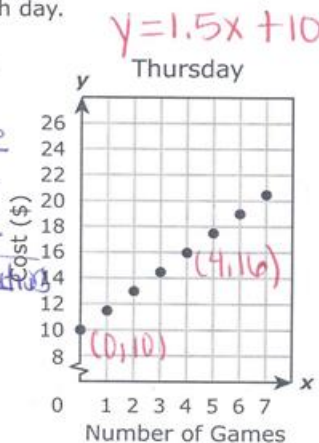
These lines are parallel so they will never intersect, so no solution

$$\begin{array}{r|l} 4x - 7y & = -2 \\ -4x & -4x \\ \hline -7y & = -4x - 2 \\ -7 & -7 \\ \hline y & = \frac{4}{7}x + \frac{2}{7} \end{array}$$

$$\begin{array}{r|l} 12x - 21y & = -42 \\ -12x & -12x \\ \hline -21y & = -12x - 42 \\ -21 & -21 \\ \hline y & = \frac{4}{7}x + 2 \end{array}$$

53 The graphs show the cost of attending a county fair on Thursday and on Saturday and playing x games each day.

I would write equations for both of these so I could look in the table and compare & look at the equations



Based on the graphs, which statement is true?

- A The cost of each game on Thursday is \$0.50 less than the cost of each game on Saturday. No, cost of each game is \$1 less on Thursday
- B A person would spend \$4 more to attend the fair and play 6 games on Saturday than on Thursday. yes, look in the table
- C The cost of each game on Saturday is \$2 less than the cost of each game on Thursday. No, the cost is \$1 more on Saturday
- D A person would spend \$3 more to attend the fair and play 5 games on Thursday than on Saturday. No, look in the table, it is \$3 more on Saturday not less

	Thursday	Saturday
x	y ₁	y ₂
6	19	23

	Thu	Sat.
x	y ₁	y ₂
5	17.5	20.5

- 54 The student council sent its members on four field trips during the school year. The number of buses needed to transport the members on each trip is a function of the number of members who went on each trip. This function consists of only the ordered pairs (52, 3), (72, 4), (86, 5), and (105, 6). What is the domain for this situation?

F {52, 105}

G {3, 4, 5, 6}

H {52, 72, 86, 105}

J {3, 4, 5, 6, 52, 72, 86, 105}

→ is the x's

just list the x's



**STAAR
Algebra I
May 2015**