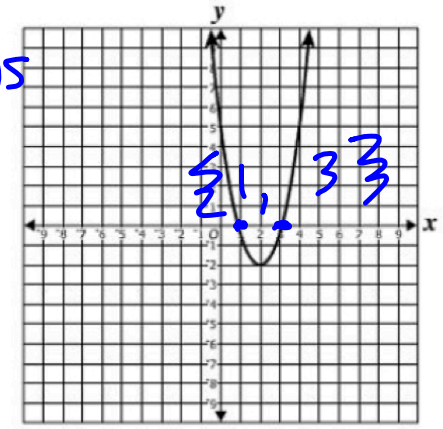
Look at the graphed function shown.

Zeros, x-int, roots, solutions

opposite of

FACTORS



Y=

$Y_1 = (x-3)(2x+2)$

graph

(does it match?)

Based on the zeros, which best represents the graphed function?

- A $y = (x-3)(2x+2)$
- B $y = (2x+6)(x+1)$
- C $y = 2(x+3)(x-1)$
- D $y = 2(x-3)(x-1)$

April 16, 2016

Travis would like to buy some toys to donate to charity. He plans to buy 9 dolls at d dollars each, 2 toy cars at c dollars each, and 3 train sets at t dollars each. Which expression represents the total cost, in dollars, of these items that Travis wants to buy?

- A $9c+2t+3d$
- B $9d-2c-3t$
- C $9d+2c+3t$
- D $9c-2t-3d$

Which expression is equivalent to $\frac{18c^8d^9}{9c^3d^6}$? Assume the denominator does not equal zero.

- A $2c^5d^3$
- B $9c^5d^3$
- C $2c^{11}d^{15}$
- D $9c^{11}d^{15}$

divide the coefficients
subtract the exponent

$2c^5d^3$

Do not use
$\{-1, 0, 1\}$

```
2→C
                    2
3→D
                    3
(18C^8D^9)/(9C^3
D^6)
                 1728
```

$2 \to C$

$3 \to D$

$(18c^8d^9)/(9c^3d^6)$

Directions: Click on a box to choose each expression you want to select. You must select all correct expressions.

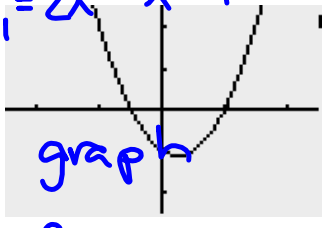
Identify each expression that is a factor of this polynomial.

$$4x^2 - 2x - 2$$

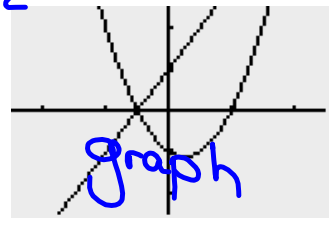
$2x+1$	2	$x-1$	$2x-1$	$4x-1$

$2(2x^2 - x - 1)$

$Y_1 = 2x^2 - x - 1$



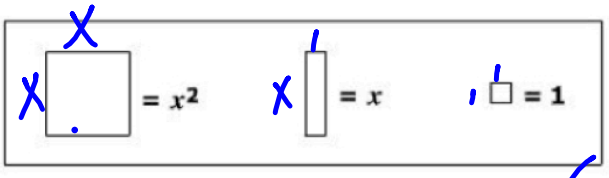
Y_2 = factors



Y_3 = factor

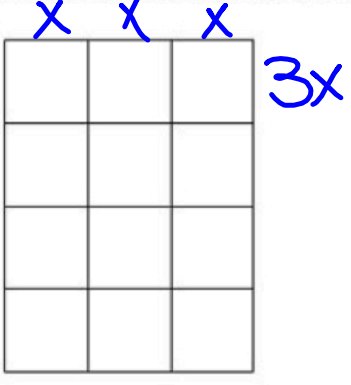
Must cross x-intercepts of original function

Look at this key.

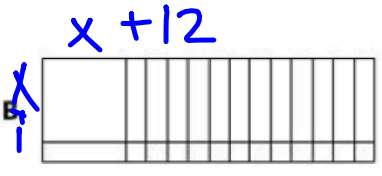


Which model correctly represents the product of $(x+3)$ and $(x+4)$?

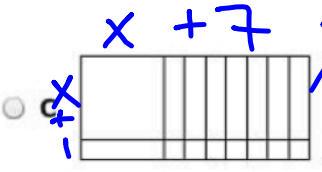
A



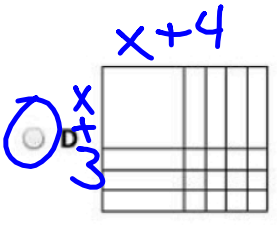
B



C



D



$(x+3)(x+4)$

$x(x+4)+3(x+4)$

$x^2+4x+3x+12$

$x^2+7x+12$

What is $\sqrt{18}$ written in simplest radical form?

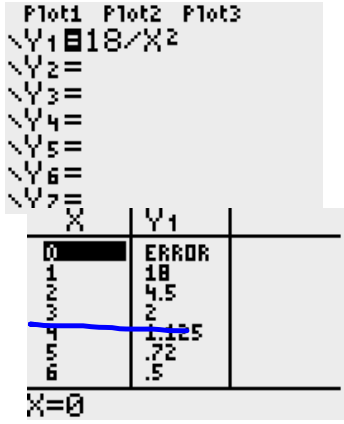
- A $2\sqrt{3}$
- B $3\sqrt{2}$
- C $3\sqrt{6}$
- D $6\sqrt{3}$

$\sqrt{128}$

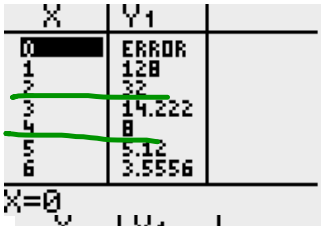
$Y=$

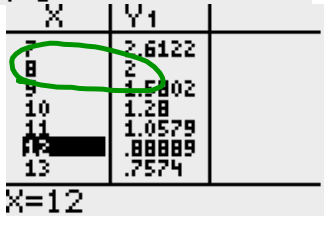
$Y_1 = 18/X^2$

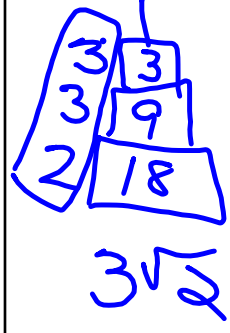
2nd graph



Smallest whole # in Y column







$3\sqrt{2}$

$3\sqrt{2}$

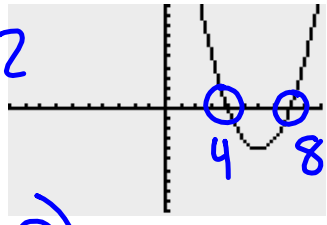
Which binomial is a factor of $c^2 - 12c + 32$?

- A $c-12$
- B $c-8$
- C $c-2$
- D $c-1$

Y=

$Y_1 = X^2 - 12X + 32$

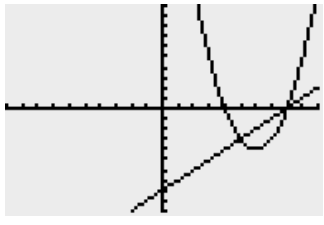
graph



(X-intercepts?)

Solutions are the opposite of your factors

$(C-4)(C-8)$



What is the value of this expression when $x = \frac{2}{3}$?

$$x^2+3x-2$$

- A $\frac{16}{3}$
- B $\frac{40}{9}$
- C $\frac{4}{3}$
- D $\frac{4}{9}$

$$\left(\frac{2}{3}\right)^2+3\left(\frac{2}{3}\right)-2$$

.44

Math
enter
enter

Which expression is equivalent to $(3x^{-4})^2 (5x^{-2})$?

- A $\frac{30}{x^{10}}$
- B $30x^{14}$
- C $\frac{45}{x^{10}}$
- D $45x^{14}$

$2 \rightarrow X$

```
2→X
                    2
X                   2
(3X^-4)²(5X^-2)
          .0439453125
■
```

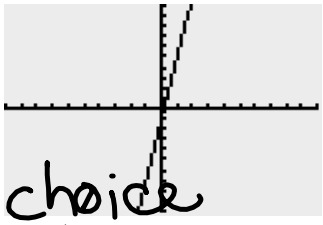
Which polynomial is equivalent to $(18n^2 - 9n + 1) \div (3n - 1)$? Assume the divisor is not equal to zero.

- A $6n - 1$
- B $6n + 1$
- C $6n^2 - 3$
- D $18n^2 - 3$

$Y=$

$Y_1 = (18X^2 - 9X + 1)/(3X - 1)$

graph



Y_2 = answer choice 1 @ a time

graph (MUST graph exact same line

2nd graph

ALL Y's must Match

X	Y_1	Y_2
0	-1	-1
1	5	5
2	11	11
3	17	17
4	23	23
5	29	29
6	35	35

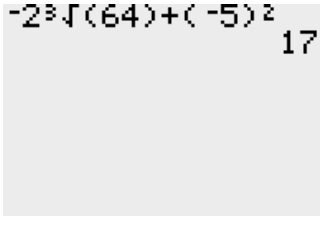
X=0

Directions: Type your answer in the box.

What is the value of this expression when $a = 64$ and $b = -5$?

$$-2\sqrt[3]{a} + b^2$$

-2 Math 4 $\sqrt[3]{(64)} + (-5)^2$



When $n > 0$, which expression is equivalent to $\sqrt{42n^9}$ in simplest form?

- A $n^3\sqrt{42}$
- B $n^4\sqrt{42n}$
- C $6n^3\sqrt{7}$
- D $6n^4\sqrt{7n}$

2 → Alpha LOG

```
2→N
                    2
2→N
                    2
√(42N^9)
      146.6424222
```

Look at the system of equations.

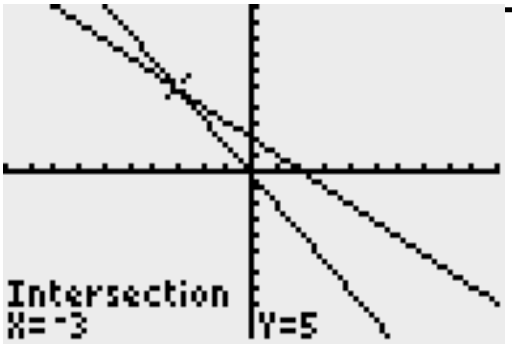
$$\begin{cases} y = -x + 2 \\ 7x + 4y = -1 \end{cases}$$

$Y=$
$Y_1 = -X+2$
$Y_2 = -\frac{7}{4}X - \frac{1}{4}$
graph

2nd
Trace
5
enter
enter
enter

What is the value of x for the solution to this system of equations?

- A −5
- B −3
- C 3
- D 5



$7x + 4y = -1$
$-7x \qquad -7x$

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

$Y_2 = \frac{-7}{4}x - \frac{1}{4}$

Pierre solved an inequality as shown.

Step 1: $-8 \geq n + 3$

Step 2: $-8 + (-3) \geq n + 3 + (-3)$

Step 3: $-11 \geq n + 0$

Step 4: $-11 \geq n$

What property justifies the work between Step 3 and Step 4 ?

- **A** Inverse property of addition
- **B** Identity property of addition
- **C** Addition property of inequality
- **D** Commutative property of addition

Which property of real numbers justifies the work shown?

$$13x - 1 = (12x + 15) + 7x$$
$$13x - 1 = 7x + (12x + 15)$$

- **A** Commutative property of addition
- **B** Associative property of addition
- **C** Identity property of addition
- **D** Distributive property

What is the slope of the line represented by $\frac{1}{8}x + 3y = 3$?

- A $\frac{-1}{8}$
- B $\frac{-1}{24}$
- C $\frac{1}{24}$
- D $\frac{1}{8}$ $\left(-\frac{1}{8}\right) \div 3$

$\frac{1}{8}x + 3y = 3$

$-\frac{1}{8}x \qquad -\frac{1}{8}x$

$\frac{3y}{3} = \frac{-\frac{1}{8}x + 3}{3}$

$y = -\frac{1}{24}x + 1$

$\left(\frac{1}{8}\right) / 3$

$-\frac{1}{24}$

or $\rightarrow$ $m = \frac{\text{coefficient of } x}{\text{coefficient of } y}$ Change sign

April 16, 2016

Directions: Type an inequality in the box. Use the < or > for the inequality sign.

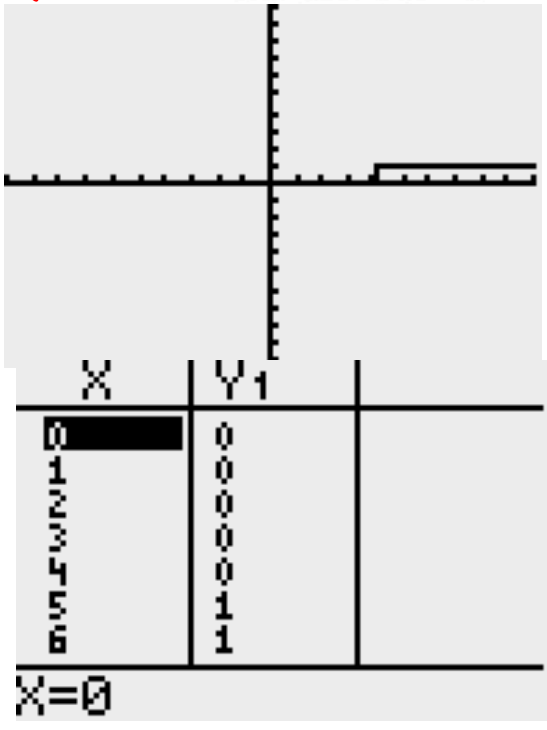
Solve for x:

$-2x+6<x-6$

$Y_1 = -2x+6 < x-6$

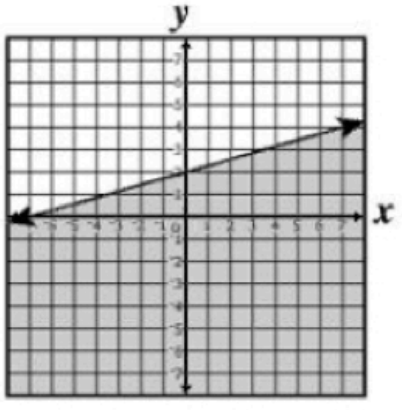
2nd graph

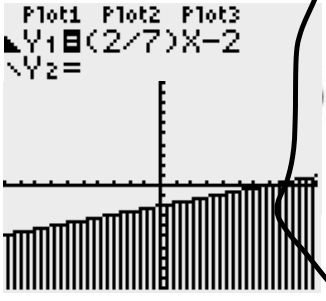
math



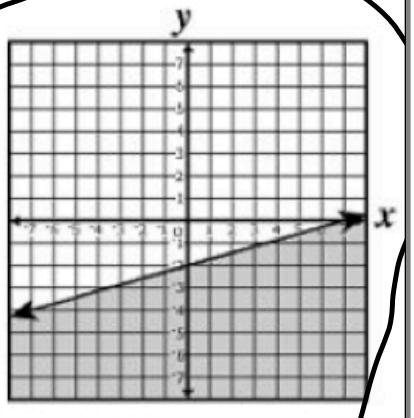
Which graph best models $y \leq \frac{2}{7}x - 2$?

A

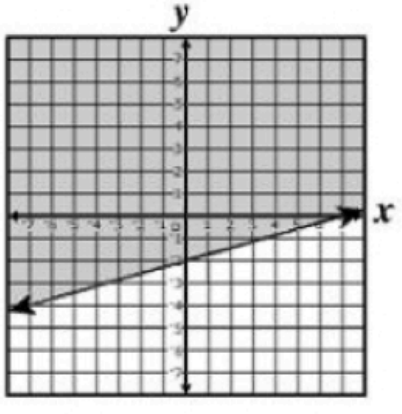




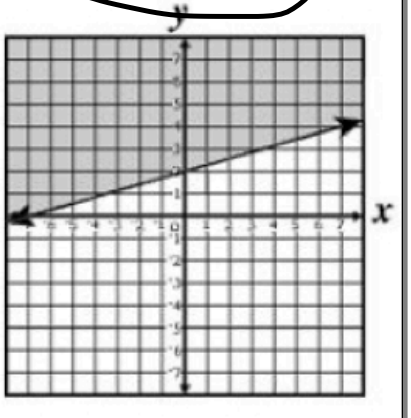
C



B

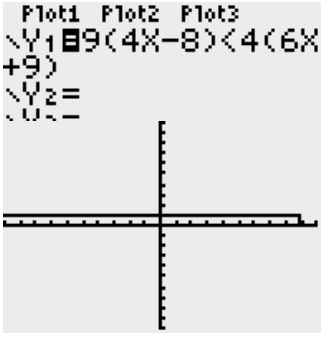


D



Which inequality represents all the solutions of $9(4x-8) < 4(6x+9)$?

- A $x < -3$
- B $x > -3$
- C $x < 9$
- D $x > 9$



$x < 9$

$9(4x-8)$

2nd math 5

$4(6x+9)$

graph

April 16, 2016

A total of 243 adults and children are at a movie theater. There are 109 more adults than children in the theater. If a represents the number of adults and b represents the number of children, which system of equations could be used to find the number of adults and the number of children in the theater?

A $\begin{cases} a+b=243 \\ a=109b \end{cases}$

B $\begin{cases} a+b=243 \\ b=109a \end{cases}$

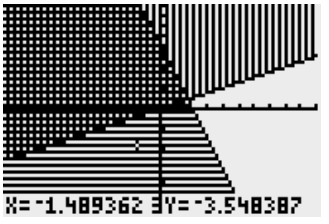
C $\begin{cases} a+b=243 \\ a=b+109 \end{cases}$

D $\begin{cases} a+b=243 \\ b=a+109 \end{cases}$

Directions: Click on a box to choose each point you want to select. You must select all correct points.

A system of inequalities is shown.

$$\begin{cases} y > \frac{1}{2}x + 1 \\ y + 3x \leq 6 \end{cases}$$



From the given points, select each point that is a solution to this system of inequalities.

(-1, -3)	(1, 2)	(2, 0)	(4, 6)

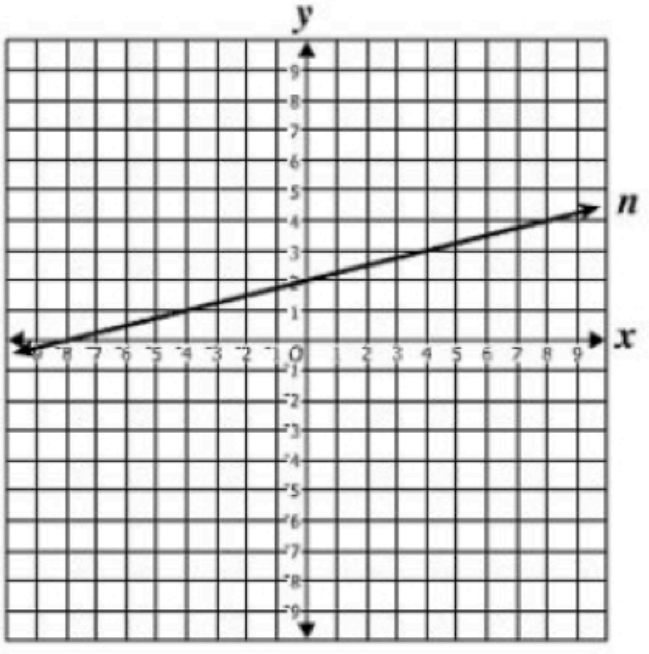
$y + 3x \leq 6 - 3x$ ← to move x

$-3x$

divide by the coefficient of y

$y \leq -3x + 6$

The graph of line n is shown.



Which number is closest in value to the slope of line n ?

- A -4
- B $-\frac{1}{4}$
- C $\frac{1}{4}$
- D 4

The formula shown can be used to find A, the amount of money Raul has in his savings account.

$$A = P + Prt$$

Raul wants to find r, the rate of interest his money earns. Which equation is correctly solved for r ?

- A $r = APt$
- B $r = A - 2Pt$
- C $r = \frac{A}{2Pt}$
- D $r = \frac{A - P}{Pt}$

literal equations

$A = P + Prt$

$-P \quad -P$

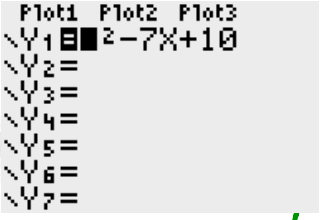
$\frac{A - P}{Pt} = \frac{Prt}{Pt}$

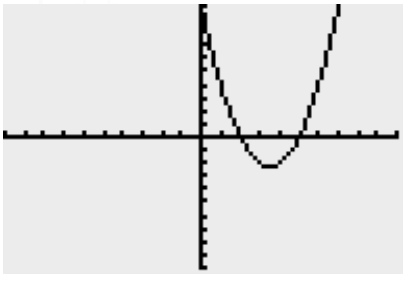
$\frac{A-P}{Pt} = r$

What are the real roots of $x^2 - 7x + 10 = 0$?

x-int
zeros
solutions

- A 2 and 5
- B 1 and 10
- C −1 and −10
- D −2 and −5





y =
graph
x-intercepts

New Calc

Apps
8
1

A data set with an even number of data points is ordered from least to greatest. The middle two data points are represented by x_1 and x_2. This formula can be used to find the median of the data set.

$$m = \frac{x_1 + x_2}{2}$$

Which shows this formula solved for x_1 ?

- A $x_1 = m - \frac{x_2}{2}$
- B $x_1 = 2m - x_2$
- C $x_1 = 2m - 2x_2$
- D $x_1 = m - 2 - x_2$

$$2 \cdot M = \frac{X_1 + X_2}{2} \cdot 2$$

$$2M = X_1 + X_2$$

$$-X_2 \qquad -X_2$$

$$2M - X_2 = X_1$$

Which equation represents the horizontal line passing through (7, 5)?

A $x = 5$

B $y = 5$

C $x = 7$

D $y = 7$

Horizontal $Y = \#$

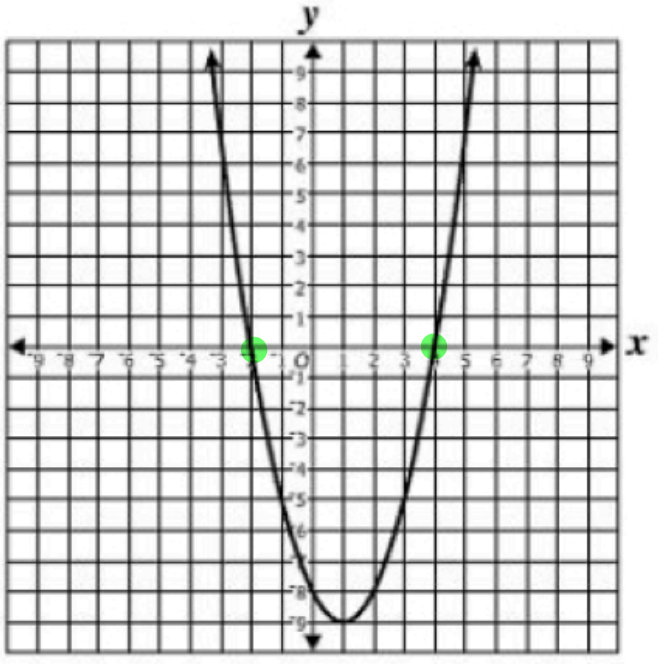
Slope 0

Vertical

Undefined

$X = \#$

The graph of $y = x^2 - 2x - 8$ is shown.



{4, -2}

What are the solutions to $x^2 - 2x - 8 = 0$?

- A $x = 1$ and $x = -9$
- B $x = 0$ and $x = -8$
- C $x = -2$ and $x = 4$
- D $x = -4$ and $x = 2$

$(x-4)(x+2)$
what are the factors then flip signs.

What value of p will make this equation true?

$$\frac{6p+4}{6} = \frac{4p-8}{3}$$

- A −10
- B −6
- C 2
- D 10

$$\frac{(6(-10)+4)}{6} = \frac{(4(-10)-8)}{3}$$

$$6(4p-8) = 3(6p+4)$$

$$24p-48 = 18p+12$$

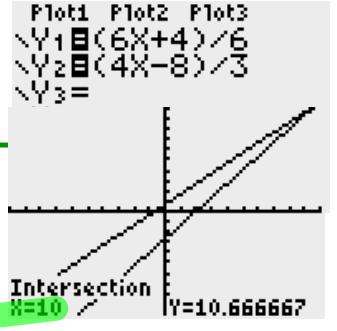
$$-18p \qquad -18p$$

$$6p-48 = 12$$

$$+48 \qquad +48$$

$$\frac{6p}{6} = \frac{60}{6}$$

$$p = 10$$



$y =$

$y_1 =$ left side

$y_2 =$ right side

graph

2nd

Trace

5

enter

enter

enter

Direction: Type your answer in the box.

What is the slope of the line represented by this equation?

$3x + 5y = -7$

Slope =

solve for y

$3x + 5y = -7$

$-3x \quad -3x$

$5y = -3x - 7$

$\frac{5y}{5} = \frac{-3x}{5} - \frac{7}{5}$

$y = \frac{-3}{5}x - \frac{7}{5}$

coefficient of x

coefficient of y

change sign

$\frac{-3}{5}$

The length, l, of a rectangle is 3 times its width. The perimeter of the rectangle is greater than 48 centimeters. Which inequality expresses all the possible lengths, in centimeters, of the rectangle?

- A $l > 6$
- B $l > 12$
- C $l > 18$
- D $l > 36$

add

$l = 3w$ $P > 48$

$3w + w + 3w + w = P$ $l = 3w$

$8w = P$

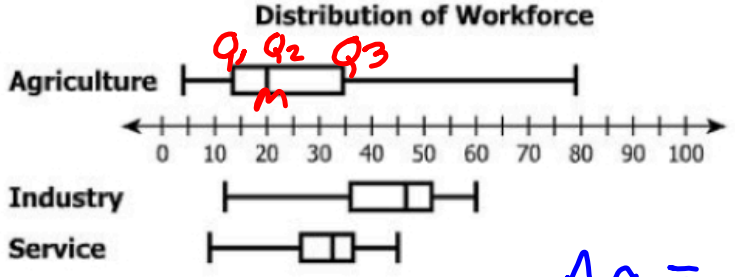
$\frac{8w}{8} > \frac{48}{8}$

$w > 6$

$3w > 18$

$l > 18$

These box-and-whisker plots summarize the percent of the workforce employed in agriculture, industry, and service jobs in twenty towns.



Which statement is NOT true?

- A Industry has the greatest median value.
- B Service has the range with the least value.
- C Agriculture has the range with the greatest value.
- D Industry has the interquartile range with the least value.

Q3 − Q1

Ag = 22
In = 17
S = 10

Ag = 20
In = 45
S = 32

Ag = 75
In = 50
S = 35

Directions: Click and drag each selected ordered pair to a box.

Using the ordered pairs shown, create a relation containing three ordered pairs with a domain of $\{-1, 2, 4\}$.

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

(−3, −1)	(4, −2)
(−1, 0)	(3, 4)
(−2, 2)	(2, 3)

This relation is an inverse variation.

$\{(-1, 8), (4, -2), (-2, 4)\}$

Which equation represents this relation?

- A $y = -3x + 5$
- B $y = -2x$
- C $y = \frac{-x}{8}$
- D $y = \frac{-8}{x}$

$y = \frac{K}{X}$ ← #

Which equation represents the pattern shown in the table?

x	y
-3	-10
-2	-7
-1	-4
0	-1

- A $y = -3x - 19$
- B $y = -x - 13$
- C $y = x - 1$
- D $y = 3x - 1$

$y = ax + b$
$a = 3$
$b = -1$

STAT
#1
$\times L_1, L_2$

```
LinReg
 y=ax+b
 a=3
 b=-1
```

STAT
→ CALC
4
(enter 5 times)(new calc)
(enter 1 time)(old calc)

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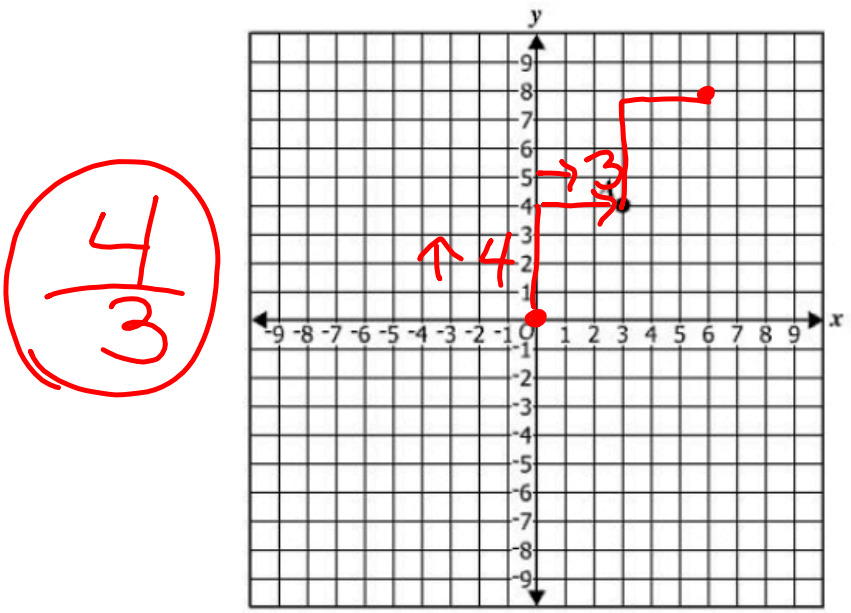
Directions: Click on the grid to plot the point you want to select.

The graph of the equation representing a direct variation passes through point A. Locate one additional point that is on the graph of this equation.



Identify each additional point that is on the graph of this equation.

Look at the data in this table.

Stat
→
$X_S = L_1$
$Y_S = L_2$
Stat
→ calc
4 enter

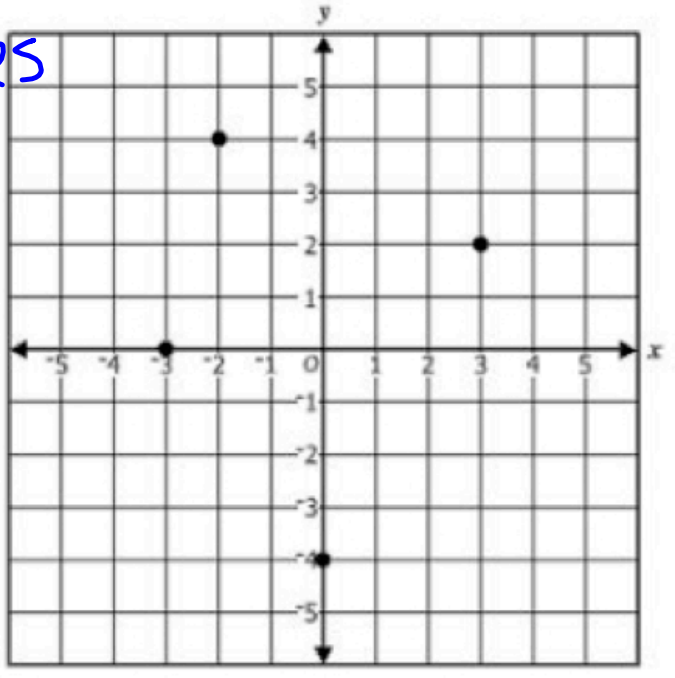
x	y
1	2
2	4
3	5
4	7
5	9
6	11

Which equation most closely represents the line of best fit for this data?

- **A** $y = 1.77x + 0.13$
- **B** $y = 0.56x - 0.05$
- **C** $y = 0.5x$
- **D** $y = 2x$

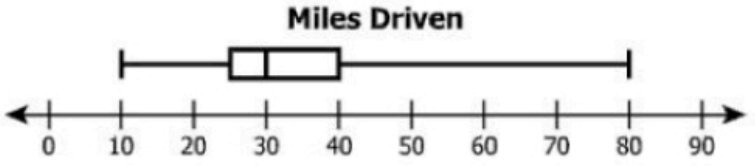
What is the range of this relation?

range = y values



- A $\{x \mid -3 \leq x \leq 3\}$
- B $\{-3, -2, 0, 3\}$
- C $\{y \mid -4 \leq y \leq 4\}$
- D $\{-4, 0, 2, 4\}$

Katie recorded the number of miles she drove for each of 9 days. She drove a different number of miles each day. This box-and-whisker plot summarizes her information.



Katie drove 30 miles on each of two additional days. She redrew the box-and-whisker plot to include this data. Which statement must be true?

30 30 30

- **A** The value of the range decreased.
- **B** The value of the mean remained the same.
- **C** The value of the median remained the same.
- **D** The value of the interquartile range increased.

Two relationships are described.

Relationship S: Karen drove 160 miles in 4 hours, and then she drove 80 miles in 2 hours.

160/4 = 80/2

Relationship T: Vernon cooked 6 hamburgers in 10 minutes, and then he cooked 9 hamburgers in 15 minutes.

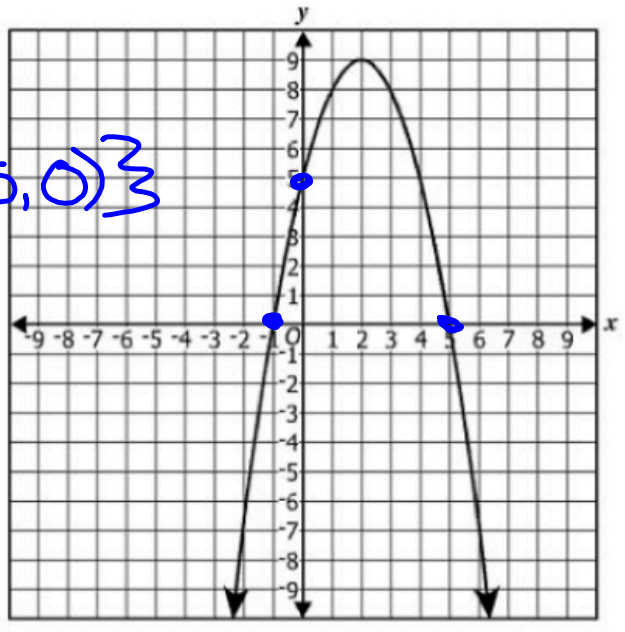
6/10 = 9/15

Which statement is true about these relationships?

- **A** Neither relationship is a direct variation.
- **B** Both relationships are direct variations.
- **C** Only Relationship S is a direct variation.
- **D** Only Relationship T is a direct variation.

Directions: Click on the grid to plot each point you want to select. You must select all correct points.

Identify each of the x- and y-intercepts of the relation shown.



{(-1,0),(0,5),(5,0)}

What is $f(-8)$ for the function f ?

$$f(x) = \frac{11(x-24)}{2}$$

- A −56
- B −88
- C −176
- D −352

$$f(x) = \frac{11(8-24)}{2}$$

$$= \frac{11(-16)}{2}$$

$$= -88$$

The number of complaints a company received at the end of each of six weeks is shown in this table.

Stat
1
Xs L1
Ys L2
Stat
→ calc
4 enter

Company's Complaints

Week	Number of Complaints
1	225
2	205
3	187
4	169
5	147
6	130

Based on the line of best fit, how man e company expect at the end of week 8 ?

Y=-19.06(8)+243.87

- A 75
- B 91
- C 96
- D 110

```
LinReg
y=ax+b
a=-19.05714286
b=243.8666667
```

```
a=-19.05714286
b=243.8666667


-19.06*8+243.87
               91.39
```

The table shows the relationship between corresponding values of x and y.

x	y
−6	−3
−3	−2
3	0
6	1
9	2

To determine the y-value —

- **A** add 3 to the x-value
- **B** subtract 3 from the x-value
- **C** divide the x-value by 3 and add 1
- **D** divide the x-value by 3 and subtract 1

Which relation is a function?

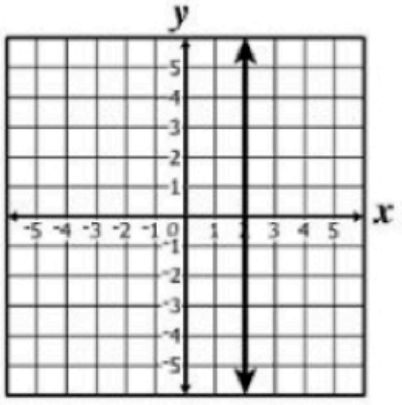
A $\{(-3, 3), (5, 5), (-3, 2), (5, 3)\}$

C

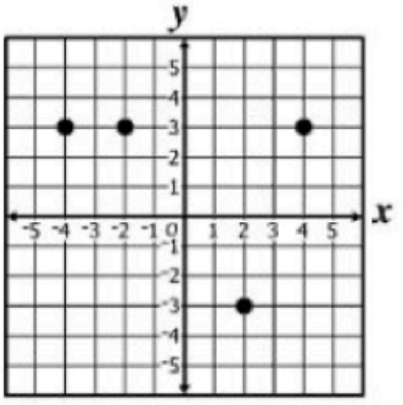
Domain	Range
4	3
5	4
2	5
4	6

X can't repeat

B



D



The manager of a company recorded the number of hours his employees worked during each of two weeks. The following statistics were calculated.

- **Week 1: The mean was 35 hours with a standard deviation of 1.5 hours.**
- **Week 2: The mean was 40 hours with a standard deviation of 2.0 hours.**

The manager concluded that there was more variation in the number of hours worked for Week 2 than for Week 1. The manager's conclusion was —

- **A** valid because the mean for Week 2 was greater than the mean for Week 1
- **B** valid because the standard deviation for Week 2 was greater than the standard deviation for Week 1
- **C** invalid because the mean for Week 1 was less than the mean for Week 2
- **D** invalid because the standard deviation for Week 1 was less than the standard deviation for Week 2

Bigger Standard Deviation = Bigger Variation

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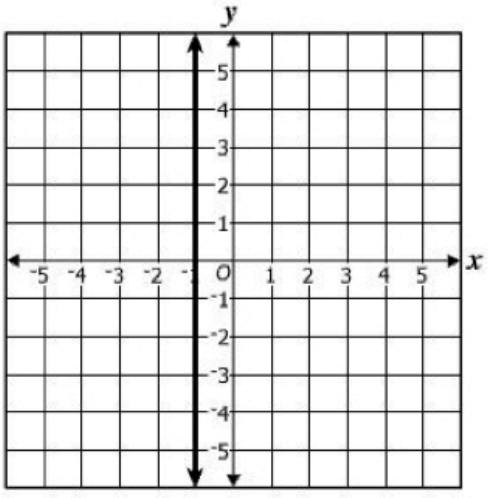
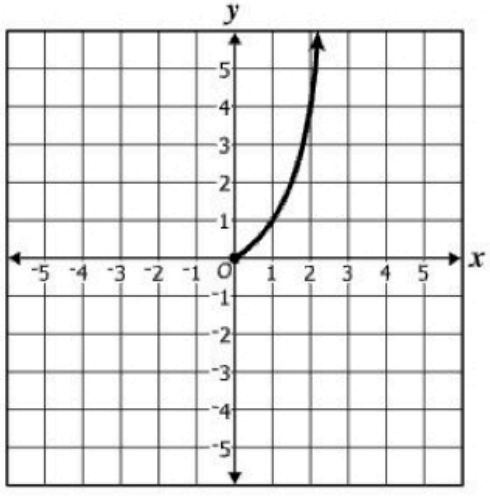
Which graph appears to show a relation that is NOT a function?

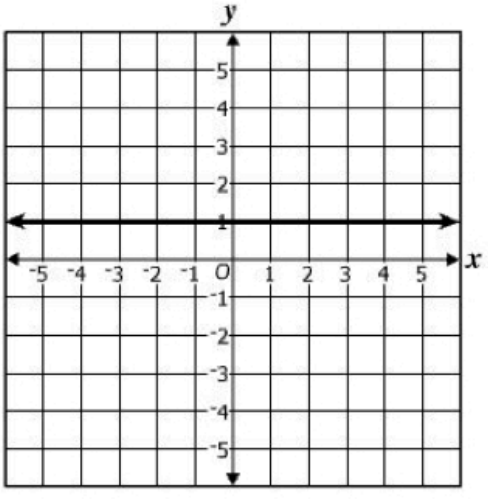
A



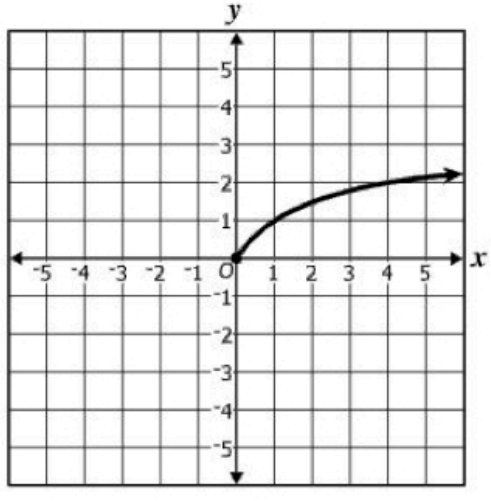
C



B



D



A scientist dropped an object from a height of 200 feet. She recorded the height of the object in 0.5-second intervals. Her data is shown.

Stat 1
$x_s L_1, y_s L_2$
Stat
→ calc
5

Height of Dropped Object

Time (seconds)	Height (feet)
0.0	200
0.5	195
1.0	185
1.5	165
2.0	135
2.5	100

Based on a quadratic model, whi e height t 3 se onds?

QuadReg
y=ax²+bx+c
a=-16.42857143
b=1.071428571
c=199.6428571

$y = -16.43x^2 + 1.07x + 199.64$

- A 52 feet
- B 55 feet
- C 65 feet
- D 80 feet

b=1.071428571
c=199.6428571

-16.43(3)²+1.07(3)+199.64
54.98

Look at function g.

$$g(x) = 9x^2 - 16$$

Which set contains only the zeros of function g ?

- A $\left\{\frac{-4}{3}, \frac{4}{3}\right\}$
- B $\left\{\frac{-4}{3}, 0, \frac{4}{3}\right\}$
- C $\{-16, 9\}$
- D $\{-16, 0, 9\}$

Y= graph

Statistical information for a data set is given.

- **The mean is 18.1.**
- **The z-score for 13.0 is −1.7.**

What is the standard deviation for this data set?

- **A** 1.7
- **B** 3.0
- **C** 3.4
- **D** 5.1

$$z = \frac{x - \mu}{\sigma}$$

$$-1.7 = \frac{13 - 18.1}{\sigma}$$

$$-1.7 = \frac{-5.1}{\sigma}$$

Plug-in

A representation of a function is shown.

Y= graph

$$f(x) = -4x + 2$$

What are the x-intercept and the y-intercept of this function?

- **A** x-intercept of $(0, -2)$ and y-intercept of $\left(\frac{-1}{2}, 0\right)$
- **B** x-intercept of $(0, 2)$ and y-intercept of $\left(\frac{1}{2}, 0\right)$
- **C** x-intercept of $\left(\frac{-1}{2}, 0\right)$ and y-intercept of $(0, -2)$
- **D** x-intercept of $\left(\frac{1}{2}, 0\right)$ and y-intercept of $(0, 2)$