Chapter 5. Analyzing Linear Equations

Answer 1PT.

Consider the equation of a vertical line cannot be in the slope-intercept form

Slope-intercept form in the form of

$y = mx + b$

Here m is slope of the line passing through the points and b is the y-intercept

Vertical lines cannot be written in the form of $y = mx + b$ because a vertical line has a slope that does not exist

A vertical line has the expression in the form $x = a$

The slope of a vertical line is ∞

Substituting $m = \infty$ in point-slope form

$$y - y_1 = m(x - x_1)$$
$$y - y_1 = \infty(x - x_1)$$
$$x - x_1 = 0$$
$$x = x_1$$

Thus the vertical lines cannot be written in slope intercept form because they have undefined slope.

Answer 1STP.

Consider a person's weekly salary is $\$x$ and she saves $\$y$

A) $\frac{x}{y}$ B) $\frac{x-y}{x}$ C) $\frac{x-y}{y}$ D) $\frac{y-x}{x}$

Need to find the fraction of her weekly salary does she spend

Take her total salary

Subtract what she is saving and you get the remaining amount minus which has to be what she is pending

To do the fraction you just do amount spent by total earned

$$\text{Weekly salary does she spen} = \frac{\text{Amount spent}}{\text{Total earned}}$$
$$= \frac{x-y}{x}$$

Thus the correct option is $\boxed{\text{B } \frac{x-y}{x}}$.

Answer 1VC.

Consider the equation $y = kx$ where $k \neq 0$

Need to state whether the equation is a direct equation or a linear extrapolation

Here the equation is in the form of $y = kx$ which is a direct variation

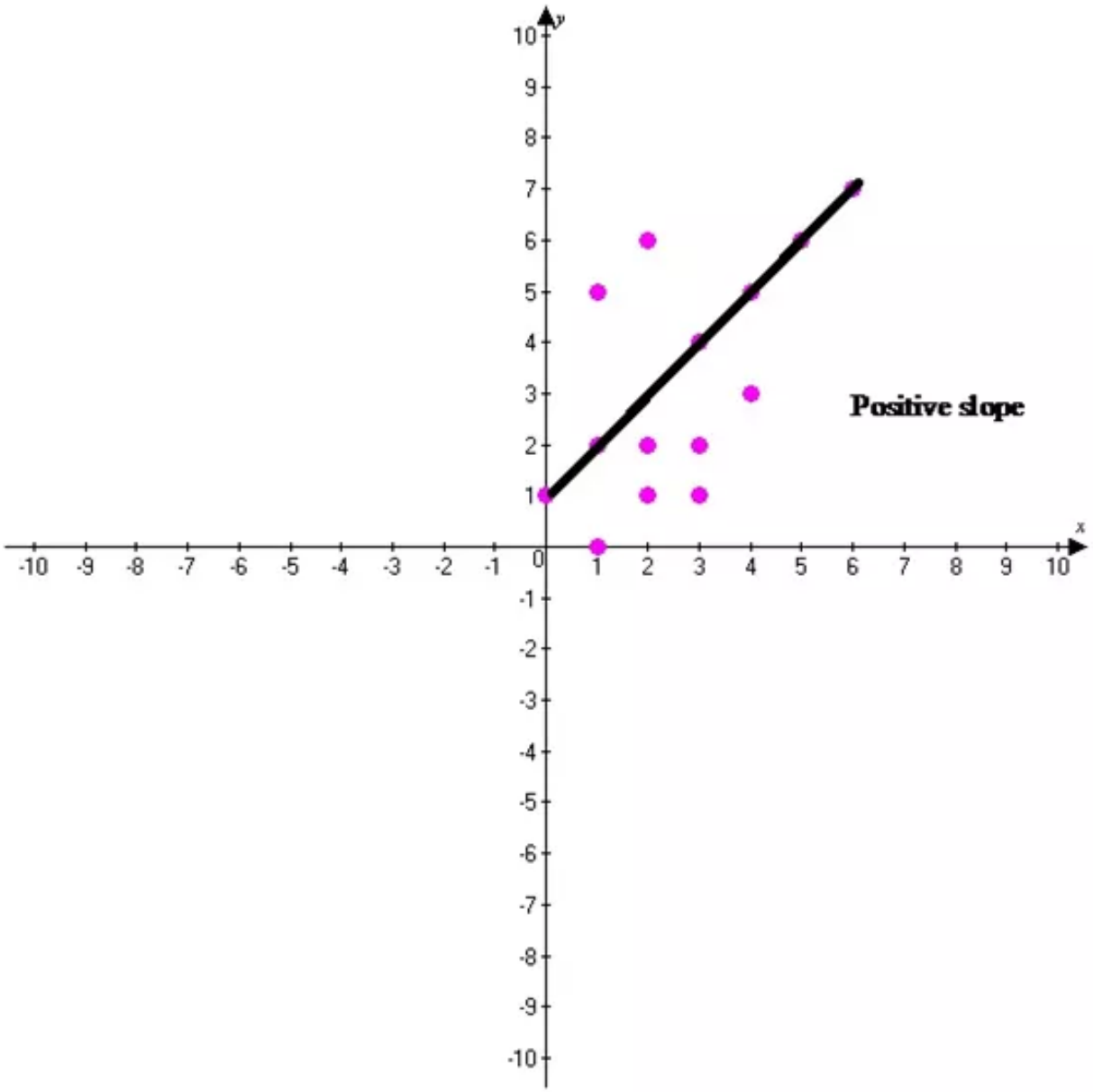
Where k is called the proportionality constant

Hence the given equation is a $\boxed{\text{Direct variation}}$.

Answer 2PT.

Consider to the scatter plot that shows a positive correlation

Scatter plot is a graph in which two sets of data are plotted as ordered pairs in a coordinate plane scatter plots are used to investigate a relationship between two quantities



From the graph we can say that positive correlation between them x and y

Because the x axis increases and y is also increases

Hence the required solution of the graph is positive correlation.

Answer 2STP.

Consider the value $x=-5$ and $y=4$ and the expression is $-2x+7y$

$(A)38$

$(B)43$

$(C)227$

$(D)243$

Need to choose the correct option

Let us take $x=-5$ and $y=4$

Substitute the x y values in the given equation

Solve the equation

$$\begin{aligned} & -2x+7y && \text{Original equation} \\ -2x+7y &= -2(-5)+7(4) && \text{Simplify} \\ &= 10+28 \\ &= 38 \end{aligned}$$

Hence the required solution of the equation is $\boxed{38}$.

Answer 3PT.

Need to name of the part of the slope-intercept form that represents the rate of change

Slope-intercept equation is in the form of $y=mx+b$

Here m represents the slope or $\frac{\text{Rise}}{\text{Run}}$, the rise divided by the run. In this way it can be treat as rate of change

The slope represents the rate of change. This is because for every input of x, you put in to the equation is change by m

So m of the equation would be treat as the rate of change

Answer 3STP.

Consider the equation $5x+6=10$

$(A)\frac{5}{4}$

$(B)\frac{1}{10}$

$(C)\frac{5}{16}$

$(D)\frac{4}{5}$

In above we have four multiple choices and find the correct answer

And find the x then we get correct answer

Solve the equation

$5x+6=10$	Original equation
$5x+6-6=10-6$	Adding -6 on both sides
$5x=4$	
$\frac{5}{5}x=\frac{4}{5}$	Divided by 5 on both sides

By simplification

$$x=\frac{4}{5}$$

Hence the required solution of the given multiple choices the correct answer is $\boxed{x=\frac{4}{5}}$.

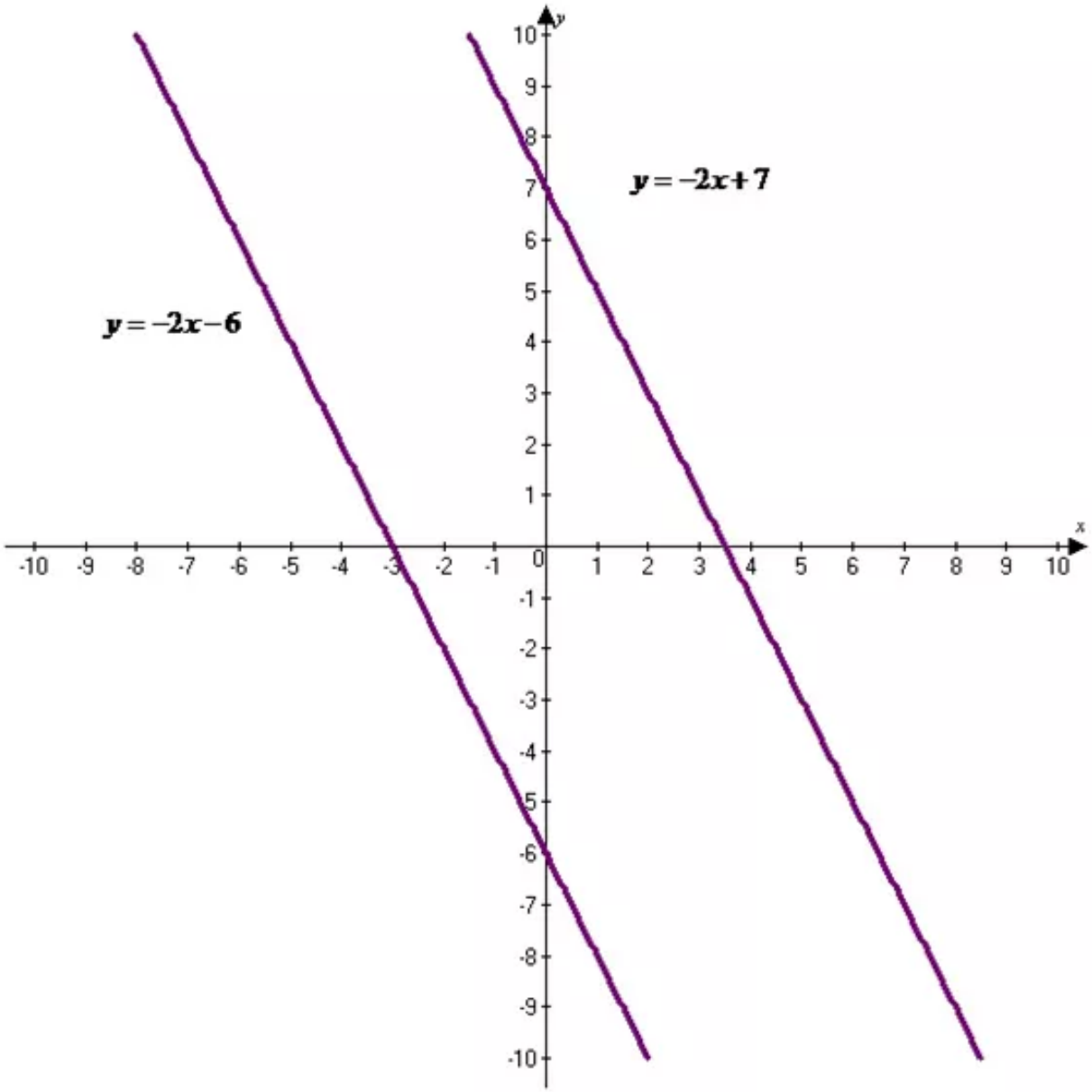
Answer 3VC.

Consider the equation $y=-2x+7$ and $y=-2x-6$

Need to whether the given equations are parallel or perpendicular

Two vertical lines are parallel if they have the same slope

Here for the two given lines have the same slope with $m=-2$. Hence the given two lines are parallel



Hence the required solution of the equation is parallel

Answer 4PT.

Need to find the slope of the line that passes through each pair of point

Given that the slope of the point

$(5,8),(-3,7)$

Slope formula

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

Substitute the values $x_1=5, y_1=8, x_2=-3, y_2=7$ in the slope formula

Solve the equation we get

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

$$m=\frac{7-8}{-3-5}$$

$$m=\frac{-1}{-8}$$

$$m=\frac{1}{8}$$

Hence required solution slope of the line that passes through the point $\boxed{m=\frac{1}{8}}$

Answer 4STP.

Consider too according to the data in the table

Age	Frequency
8	1
10	3
14	2
16	1
17	2

(A) mean age = median age

(B) mean age >median age

(C) mean age <median age

(D) median age< mode age

First we have to find the mean age

Formulae of mean

$$\bar{x}=\frac{\sum x}{n}$$

Substitute the given table values in the mean formula

$$n=\frac{8+10+14+16+17}{5}$$

$$n=\frac{65}{5}$$

$$n=13$$

Then we have to find the sum

We have multiply the each age in to each frequency and add all these products

$$\begin{aligned}\text{Sum} &= (8\times1)+(10\times3)+(14\times2)+(16\times1)+(17\times2)\\ &= 8+30+28+16+34\\ &= 116\end{aligned}$$

Substitute the values in the mean formula

$$\bar{x} = \frac{\sum x}{n}$$

$$\bar{x} = \frac{116}{13}$$

$$\bar{x} = 8.9$$

Hence the solution of the mean value is $\boxed{\bar{x} = 8.9}$

Then find the median value

The median defined as the set of numbers that are arranged in the lowest number to highest numbers

In the arranged list of numbers the middle number is called median

Then arrange the numbers in lowest order to highest order

$(1,3,2,1,2)$	List of numbers
$(1,1,2,2,3)$	Arrange the lowest to highest number
(2)	Middle number

Hence the solution of the median value is $\boxed{2}$

Now find the mode value

In the mode that we are arranged the numbers frequently repeated and the highest and lowest numbers

$(1,3,2,1,2)$	List of numbers
$(1,1,2,2,3)$	Arrange the lowest to highest number
$(1,2)$	Mode numbers

Hence the solution of the mode value is $\boxed{1,2}$

Hence the required solution of above four multiply choices $(\text{B})\,\text{mean age}>\text{median age}$ is the correct answer.

Answer 4VC.

Need to find the equation is point slope or slope intercepts form

Given that equation $y-2=-3(x-1)$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

The given equation is already in the point slope form

Then find the slope intercept form

Slope intercepts form in the form of $y=mx+b$

Solve the given equation we get

$$\begin{aligned} y-2&=-3(x-1) && \text{By distributive property } a(b+c)=ab+ac\\ y-2&=-3x+3\\ y-2+2&=-3x+3+2 && \text{Adding 2 on both sides}\\ y&=-3x+5 \end{aligned}$$

Hence the required solution of equation is slope intercept form $\boxed{y=-3x+5}$

Answer 5PT.

Need to find the slope of the line that passes through each pair of point

Given that the slope of the point

$$(5,-2),(3,-2)$$

Slope formula

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

Substitute the values $x_1=5, y_1=-2, x_2=3, y_2=-2$ in the slope formula

Solve the equation we get

$$\begin{aligned} m&=\frac{y_2-y_1}{x_2-x_1} && \text{Slope formula}\\ m&=\frac{-2-(-2)}{3-5}\\ m&=\frac{-2+2}{-2}\\ m&=\frac{0}{-2}\\ m&=0 \end{aligned}$$

Hence required solution slope of the line that passes through the point $\boxed{m=0}$

Answer 5STP.

Consider the relationship between them x and y coordinates of the data points

Draw a table

x	y
–3	4
–2	3
0	1
1	0
3	–2
5	–4

(a) x and y are opposites

(b) The sum of x and y is 2

(c) The y coordinate is 1 more than the square of the $x-$coordinate

(d) The y coordinate is 1 more than the opposite of the x coordinate

In above the given four multiply choices last answer is the correct answer

Because in the given table the x and y coordinates opposite and more than 1 of x coordinate values

Hence the required solution of between the x y coordinates the correct answer is

(D) The y coordinate is 1 more than the opposite of the x coordinate.

Answer 5VC.

Need to find the given equation is slope intercept or standard form

Given that the equation $y=-\frac{1}{3}x+6$

Formulae of slope intercept form

$y=mx+b$

Here the given $y=-\frac{1}{3}x+6$ in the form of $y=mx+b$

The given equation is already slope intercept form

Then we find the given equation is standard form

Solve the given equation we get

$$y=-\frac{1}{3}x+6$$

$$y+\frac{1}{3}x=-\frac{1}{3}x+\frac{1}{3}x+6 \qquad \text{Adding } \frac{1}{3}x \text{ on both sides}$$

$$\frac{1}{3}x+y=6$$

Hence required solution of equation is in standard form $\boxed{\frac{1}{3}x+y=6}$

Answer 6PT.

Need to find the slope of the line that passes through each pair of point

Given that the slope of the point

$(6,-3),(6,4)$

Slope formula

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

Substitute the values $x_1=6, y_1=-3, x_2=6, y_2=4$ in the slope formula

Solve the equation we get

$$m=\frac{y_2-y_1}{x_2-x_1} \qquad \text{Slope formula}$$
$$m=\frac{4-(-3)}{6-6}$$
$$m=\frac{4+3}{0}$$
$$m=\frac{7}{0}$$

Hence required solution slope of the line that passes through the point is undefined

Need to write the y intercept of the line with equation $\frac{x}{3}-\frac{y}{2}=1$

$(A)-3$
$(B)-2$
$(C)\frac{2}{3}$
$(D)\frac{3}{2}$

Consider the equation $\frac{x}{3}-\frac{y}{2}=1$

Here x intercept is zero $x=0$ in the equation $\frac{x}{3}-\frac{y}{2}=1$

Solve the equation

$$\frac{x}{3}-\frac{y}{2}=1 \qquad \text{Replce } x=0$$
$$\frac{0}{3}-\frac{y}{2}=1$$
$$-\frac{y}{2}=1 \qquad \text{Multiply } -2 \text{ on both sides}$$
$$-\frac{y}{2}\times -2=1\times -2$$

By simplification

$y=-2$

Hence the required solution the option (B) is the correct answer $\boxed{-2}$

Answer 6VC.

Need to find the x intercept and y intercept of the equation $-x-4y=2$

Next we find the x intercept

Consider the equation $-x-4y=2$

Let us take $y=0$ and solve the equation

$$\begin{aligned} -x-4y&=2 && \text{Original equation}\\ -x-4(0)&=2 && \text{Replace } y=0\\ -x&=2 && \text{Multiply } -1 \text{ on both sides}\\ x&=-2 \end{aligned}$$

Hence the required solution of the x intercept is $\boxed{x=-2}$

Consider the equation $-x-4y=2$

First we find the y intercept

Let us take $x=0$ solve the equation

$$\begin{aligned} -x-4y&=2 && \text{Original equation}\\ 0-4y&=2 && \text{Replace } x=0\\ -4y&=2\\ \frac{-4}{-4}y&=\frac{2}{-4} \end{aligned}$$

By simplification

$$y=-\frac{1}{2}$$

Hence the required solution of the y intercept is $\boxed{y=-\frac{1}{2}}$

Hence the required of the $-\frac{1}{2}$ is the y intercept

Answer 7PT.

Consider the web design company it will design and maintain the website your business $\$9.95$

Consider to write the direct variation $y=kx$

Find the total cost C and the number of months m

Then the equation is $C=mx$

Let us take $x=9.95$

Substitute the value $x=9.95$ in the $c=mx$ solve the equation

$$C=mx$$

$$C=9.95m$$

Hence the required solution of total cost and the month is $\boxed{C=9.95m}$.

Answer 7STP.

Consider to find the slope of the line that passes through the point

$(2,4)$ and $(-4,7)$

$(A)-\frac{1}{2}$

$(B)\frac{1}{2}$

$(C)-2$

$(D)2$

In above we have four multiple choices and find the correct answer

And find the slope of the points then we get correct answer

Slope formula

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

Substitute the points $(x_1,y_1)=(2,4)$ and $(x_2,y_2)=(-4,7)$ in the slope formula

Solve the equation

$$m=\frac{y_2-y_1}{x_2-x_1}$$
$$m=\frac{7-4}{-4-2}$$
$$m=\frac{3}{-6}$$
$$m=-\frac{1}{2}$$

Hence the required solution of the given multiple choices the correct answer is $\boxed{-\frac{1}{2}}$.

Thus the correct option is $\boxed{\text{A}}$.

Answer 8PT.

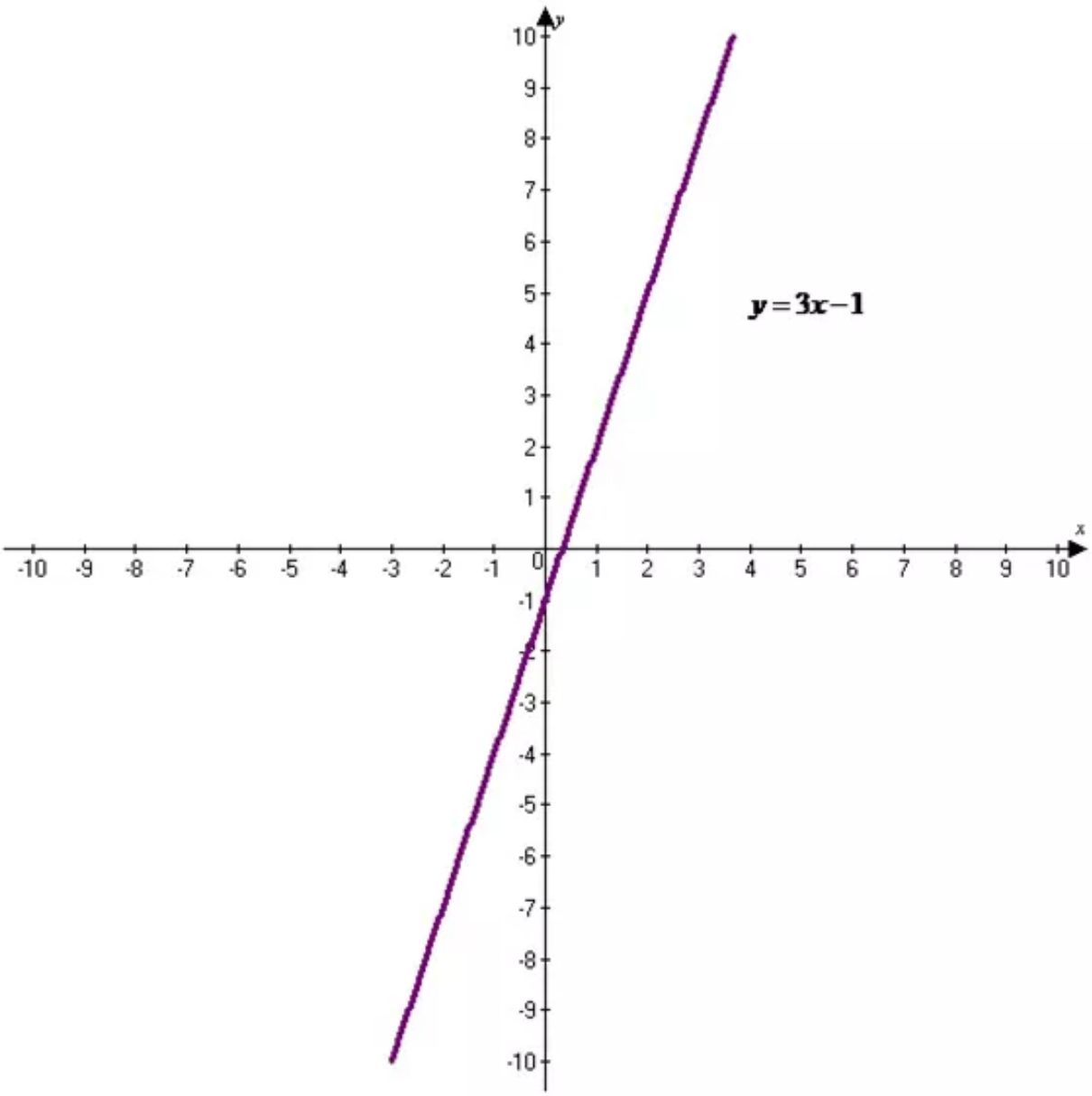
Consider the equation $y = 3x - 1$

Need to graph of equation

Here the equation is in the form of $y = mx + b$

Here $m = 3$ and y intercept is -1

The graph of $y = 3x - 1$ is shown below



Hence the required equation graph is drawn

Answer 8STP.

Consider the which equation represents the line that passes through the point

$(3,7)$ and $(10,21)$

$(A)\, x+y=10$

$(B)\, y=\frac{1}{2}x+\frac{11}{2}$

$(C)\, y=2x+1$

$(D)\, y=3x-2$

In above we have four multiple choices and find the correct answer

First find the slope of the given points

Slope formula

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

Substitute the points $(x_1,y_1)=(3,7)$ and $(x_2,y_2)=(10,21)$ in the slope formula

Solve the equation

$$m=\frac{y_2-y_1}{x_2-x_1}$$
$$m=\frac{21-7}{10-3}$$
$$m=\frac{14}{7}$$
$$m=2$$

And slope of the points $m=2$

Formula of point slope form

$$y-y_1=m(x-x_1)$$

Slope intercept form equation is in the form of $y=mx+b$

Substitute the $(x_1,y_1)=(3,7)$ and $m=2$ values in the point slope formula

Solve the equation

$$y-7=2(x-3) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y-7=2x-6$$
$$y-7+7=2x-6+7 \qquad \text{Adding 7 on both sides}$$
$$y=2x+1$$

Hence the required solution of the given multiple choices the correct answer is $\boxed{y=2x+1}$.

Thus the correct option is $\boxed{C}$.

Answer 9E.

Need to find the slope of the line that passes through each pair of points

Given that the points

$(-6,4),(-6,-2)$

Formula of slope

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

Solve slope of the line that passes through the points

Substitute the values in slope formula we get

$x_1=-6, x_2=-6, y_1=4, y_2=-2$

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

$$m=\frac{-2-4}{-6-(-6)}$$

$$m=\frac{-6}{-6+6}$$ Simplify

$$m=-\frac{6}{0}$$

Undefined

Hence the required solution slope of the line that passes through the point $\boxed{\text{Undefined}}$

Answer 9PT.

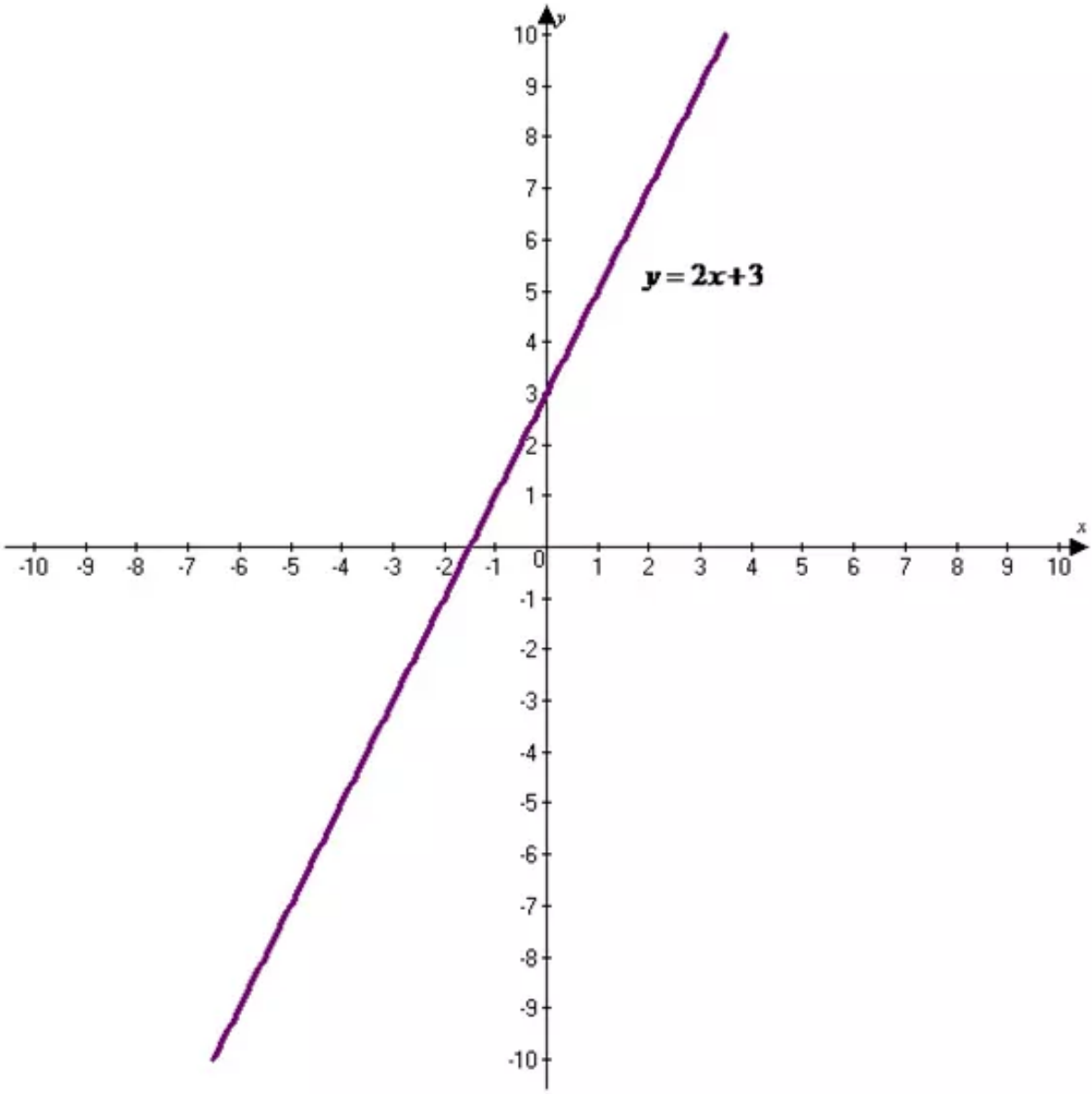
Consider the equation $y = 2x + 3$

Need to graph of equation

Here the equation is in the form of $y = mx + b$

Here $m = 2$ and y intercept is 3

The graph of $y = 2x + 3$ is shown below



Hence required equation of graph is drawn

Answer 9STP.

Need to choose the equation of a line parallel to the graph of $y = 3x + 4$

$(A)\, y = -\frac{1}{3}x + 4$

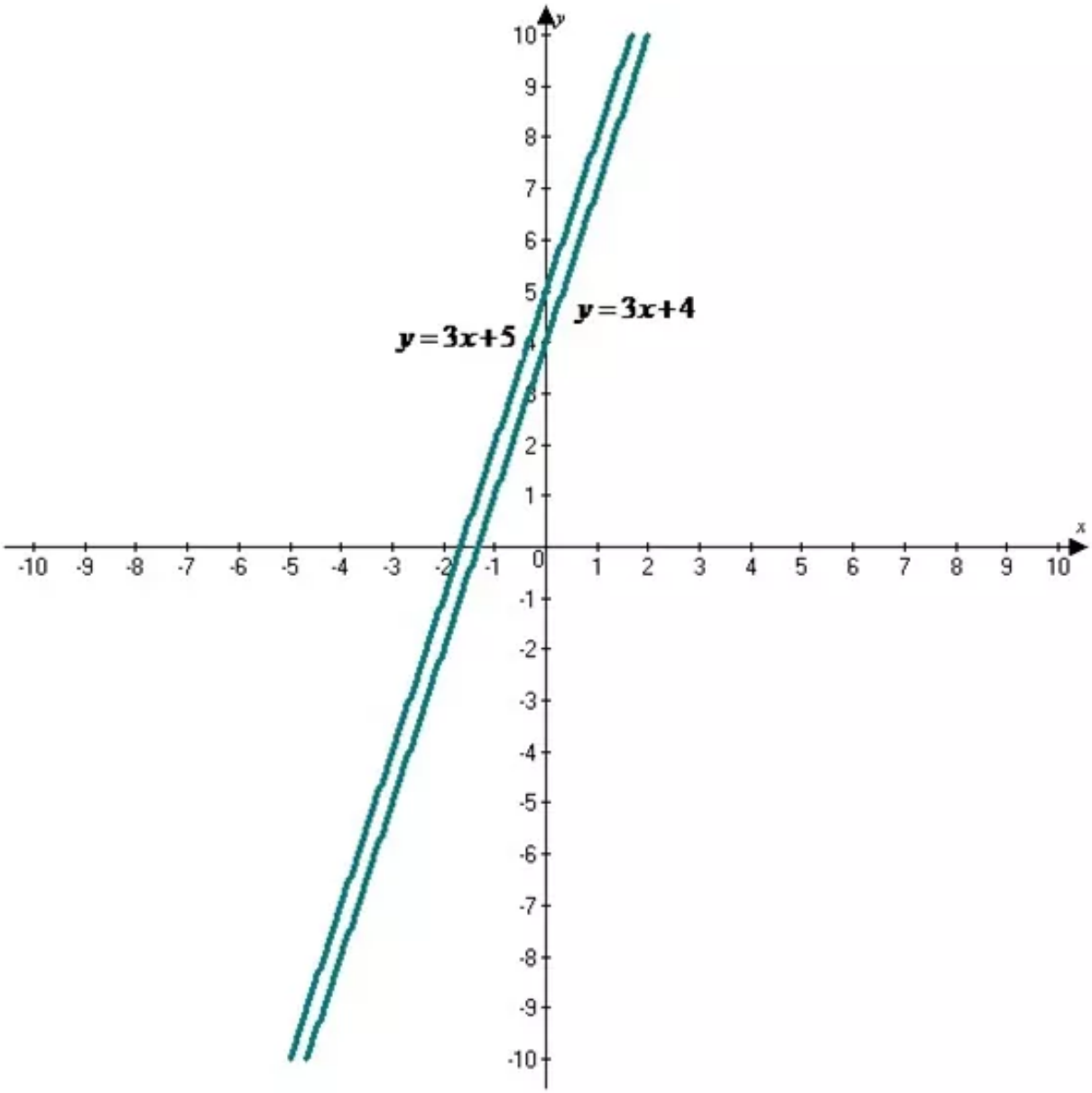
$(B)\, y = -3x + 4$

$(C)\, y = -x + 1$

$(D)\, y = 3x + 5$

Here the lines have the same plane that do not intersect are called parallel lines. Parallel lines have the same slope

Here the parallel line of equation $y = 3x + 4$ and the option $(D)\, y = 3x + 5$ have the same slope $m = 3$



Hence the required solution of the option (D) is the correct answer

Answer 10E.

Need to find the slope of the line that passes through each pair of points

Given that the points

$(8,-3),(-2,-3)$

Formula of slope

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

Solve slope of the line that passes through the points

Substitute the values in slope formula we get

$x_1=8, x_2=-2, y_1=-3, y_2=-3$

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

$$m=\frac{-3-(-3)}{-2-8}$$

$$m=\frac{-3+3}{-10}$$ Simplify

$$m=-\frac{0}{10}$$

$$m=0$$

Hence the required solution slope of the line that passes through the point $\boxed{m=0}$ it is undefined

Answer 10PT.

Consider the equation $2x+3y=9$

Find the slope of the given equation

$$2x+3y=9$$

$$2x+3y-2x=9-2x$$ Adding $-2x$ on both sides

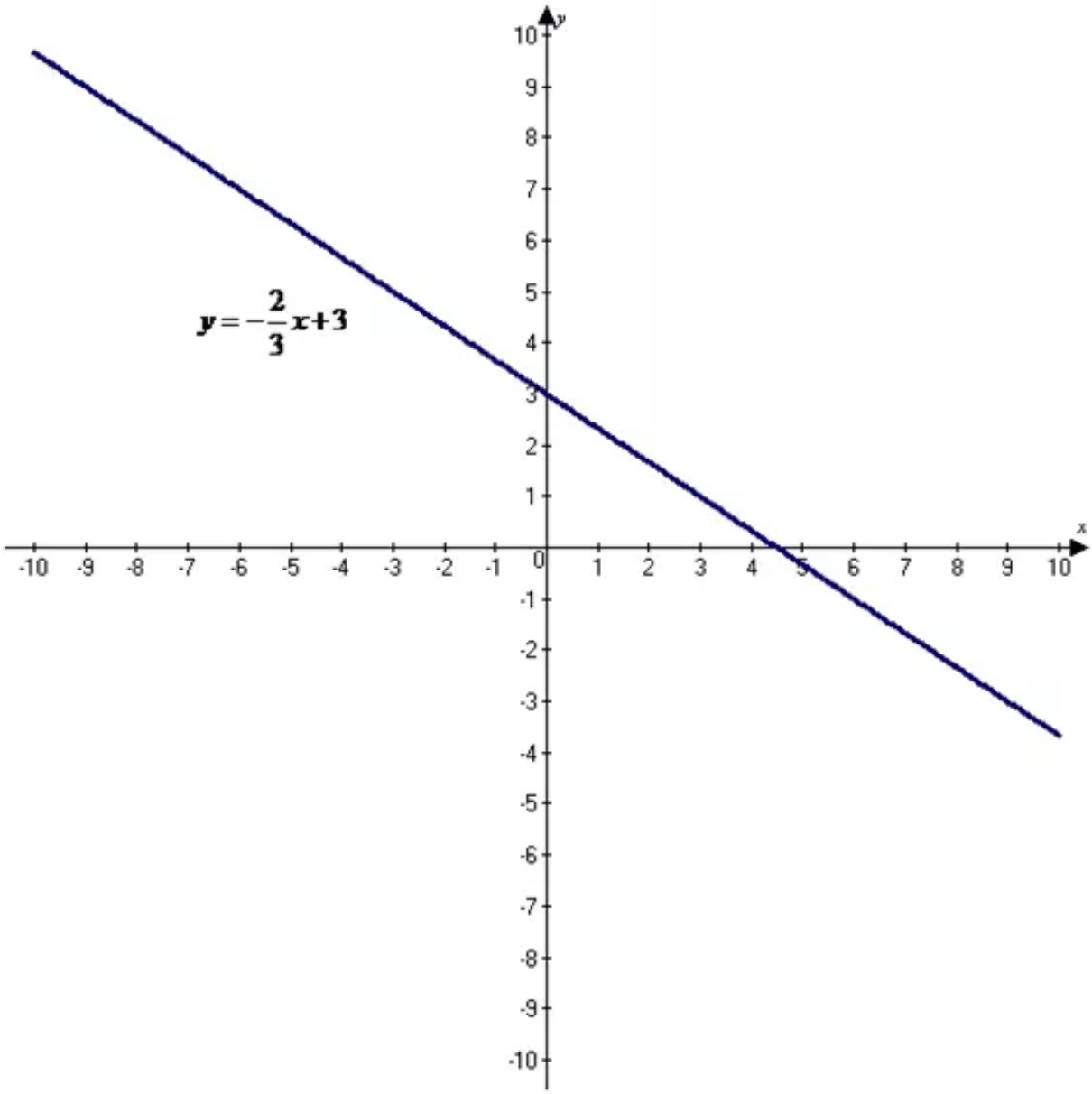
$$3y=-2x+9$$

$$\frac{3}{3}y=-\frac{2}{3}x+\frac{9}{3}$$ Divided 3 on both sides

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

Slope of the equation $=-\frac{2}{3}$

Slope of the equation $y = -\frac{-}{3}x + 3$



Hence required graph equation is drawn

Answer 10STP.

Need to find the lowest score in the game

Ellen scored 98 points

Let the lowest score be x

Ellen scored 12 points less than the twice the least score

So the equation becomes

$$2x - 12 = 98$$

$$2x - 12 + 12 = 98 + 12 \qquad \text{Adding 12 on both sides}$$

$$2x = 110 \qquad \text{Combine like terms}$$

$$x = 55 \qquad \text{Dividing both sides by 2}$$

Thus the least score be $\boxed{55}$

Answer 11E.

Need to find the slope of the line that passes through each pair of points

Given that the points

$(2.9,4.7),(0.5,1.1)$

Formula of slope

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

Solve slope of the line that passes through the points

Substitute the values in slope formula we get

$x_1=2.9, x_2=0.5, y_1=4.7, y_2=1.1$

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

Hence the required solution slope of the line that passes through the point $\boxed{m=1.5}$

Answer 11PT.

Consider the equation given the temperature $16°\text{F}$

Consider the midnight expected to fall $2°$

Find the slope

Formulae of slope $m=\frac{\text{rise}}{\text{run}}$

Substitute the vales in the slope formula

$$m=\frac{\text{rise}}{\text{run}}$$
$$m=\frac{16}{2}$$
$$m=8$$

And the slope $m=8$

Slope-intercept form in the form $y=mx+b$

Consider to the temperature T and the hour h.

Substituting $m=8, y=16$ and $x=2$ in slope-intercept for finding the y-intercept

$$y=mx+b$$
$y=mx+b$ $16=8(2)+b$ Replacing the values
$16=16+b$ Simplify
$b=0$ Adding -16 on both sides

Now plug the values $m=8$ and $b=0$ for finding the slope-intercept form

$y=mx+b$ Slope-intercept form

$y=8x+0$

$y=8x$

Thus the required equation is $\boxed{y=8x}$.

Answer 11STP.

Consider to find the x and y intercept of the equation $3x-2y=12$

First to find the x intercept

Here we place $y=0$ in the equation $3x-2y=12$

Solve the equation

$3x-2y=12$ Original equation

$3x-2(0)=12$ Replace $y=0$

$3x=12$

$\frac{3}{3}x=\frac{12}{3}$ Divided 3 on both sides

By simplification

$x=4$

Hence the required solution x intercept is $\boxed{x=4}$.

Now to find the y intercept

Here we place $x=0$ in the equation $3x-2y=12$

Solve the equation

$3x-2y=12$ Original equation

$3(0)-2y=12$ Repalce $x=0$

$-2y=12$

$\frac{-2}{-2}y=\frac{12}{-2}$ Divided by -2 on both sides

By simplification

$y=-6$

Hence the required solution of y intercept is $\boxed{y=-6}$.

Answer 12E.

Need to find the slope of the line that passes through each pair of points

Given that the points

$$\left(\frac{1}{2},1\right),\left(-1,\frac{2}{3}\right)$$

Formula of slope

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

Solve slope of the line that passes through the points

Substitute the values in slope formula we get

$$x_1=\frac{1}{2},x_2=-1,y_1=1,y_2=\frac{2}{3}$$

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

$$m=\frac{\frac{2}{3}-1}{-1-\frac{1}{2}}$$

$$m=\frac{0.66-1}{-1-0.5}$$ Simplify

$$m=\frac{-0.34}{-1.5}$$

$$m=0.226$$

Hence the required solution slope of the line that passes through the point $\boxed{m=0.226}$

Answer 12PT.

Consider the direct variation equation of x and y

Consider $y=6$ and $x=9$

The direct variation equation $y=kx$

Substitute the values $x=9,y=6$ in the direct variation equation

$y=kx$ Direct variation

$6=k(9)$ Replace $x=9,y=6$

$$\frac{6}{9}=k$$

$$k=\frac{2}{3}$$

Hence the required solution of the direct variation is $\boxed{k=\frac{2}{3}}$.

Answer 12STP.

Consider to find the slope of the line that passes through the points

$(5,2)$ and $(-7,-3)$

Formula of the slope of the line

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

Substitute the $(x_1,y_1)=(5,2)$ and $(x_2,y_2)=(-7,-3)$ in the slope formula

Solve the equation

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

$$m=\frac{-3-2}{-7-5}$$

$$m=\frac{-5}{-12}$$ Multiply -1 on both sides

$$m=\frac{5}{12}$$

Hence the required solution slope of the line that passes through the point $\boxed{m=\frac{5}{12}}$.

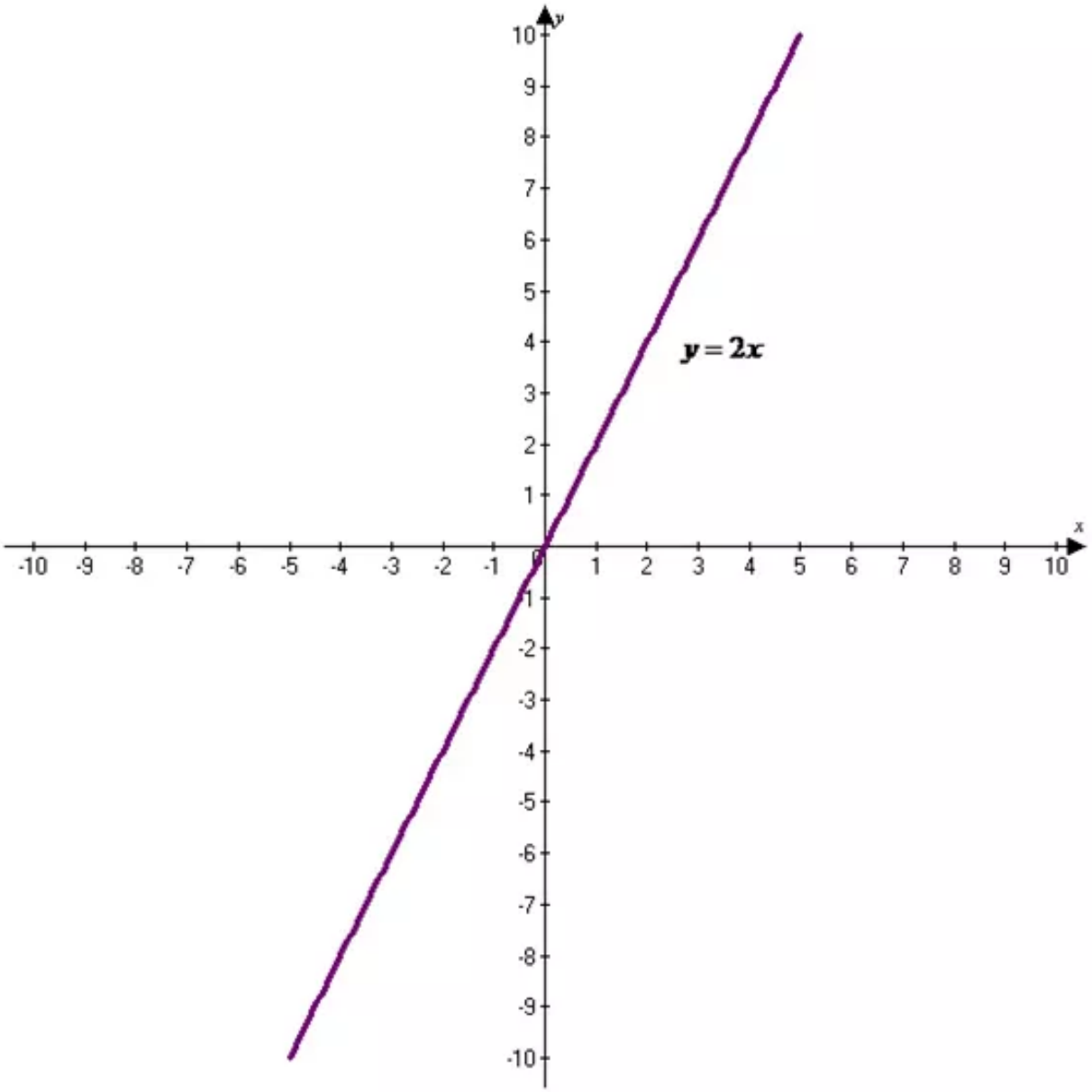
Answer 13E.

Need to find the graph of equation

Given that graph equation

$y = 2x$

The graph of $y = 2x$ is shown below



Hence the required graph equation is drawn.

Answer 13PT.

Consider the direct variation equation of x and y

Consider $y=-12$ and $x=4$

The direct variation equation $y=kx$

Substitute the values $x=-12, y=4$ in the direct variation equation

$$y=kx \qquad \text{Direct variation}$$
$$-12=k(4) \qquad \text{Replace } x=4, y=-12$$
$$\frac{-12}{4}=k$$
$$k=-3$$

Hence the required solution of the direct variation is $\boxed{k=-3}$.

Answer 13STP.

Need to find the x when $y=18$

Consider suppose y varies directly as x, and $y=-9$ when $x=3$.

Direct variation equation $y=kx$

Substitute the value $y=-9$ and $x=3$ in the $y=kx$

Solve the equation

$$-9=k(3) \qquad \text{Replce } x=3 \text{ and } y=-9$$
$$\frac{-9}{3}=k\frac{3}{3} \qquad \text{Divided 3 on both sides}$$
$$-3=k \qquad \text{Simplify}$$
$$k=-3$$

Thus the value of $\boxed{k=-3}$

Substituting $k=-3$ in the direct variation equation $y=kx$

$$y=-3x$$

For find the value of x substituting $y=18$ in the direct variation equation $y=-3x$

$$y=-3x \qquad \text{Direct variation equation}$$
$$18=-3x \qquad \text{Replace } y \text{ by } 18$$
$$\frac{-3}{-3}x=\frac{18}{-3} \qquad \text{Dividing both sides by } -3$$
$$x=-6$$

Hence the required solution of the x is $\boxed{x=-6}$

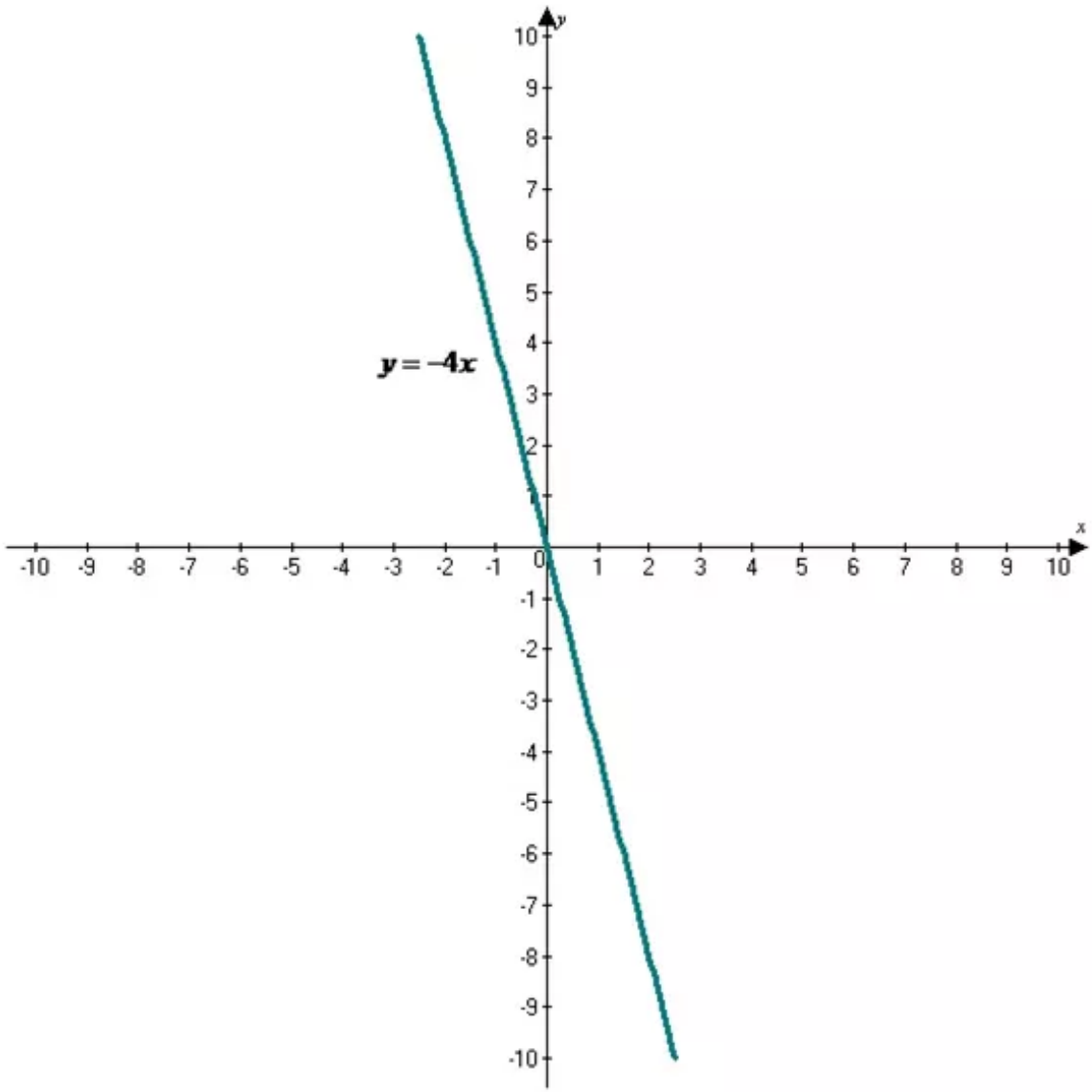
Answer 14E.

Need to find the graph of equation

Given that graph equation

$y = -4x$

The graph of $y = -4x$ is shown below



Hence the required graph equation is drawn.

Answer 14PT.

Consider the direct variation equation of x and y

Consider $y = -8$ and $x = 8$

The direct variation equation $y = kx$

Substitute the values $x = -8, y = 8$ in the direct variation equation

$y = kx$ Direct variation

$-8 = k(8)$ Replace $x = 8, y = -8$

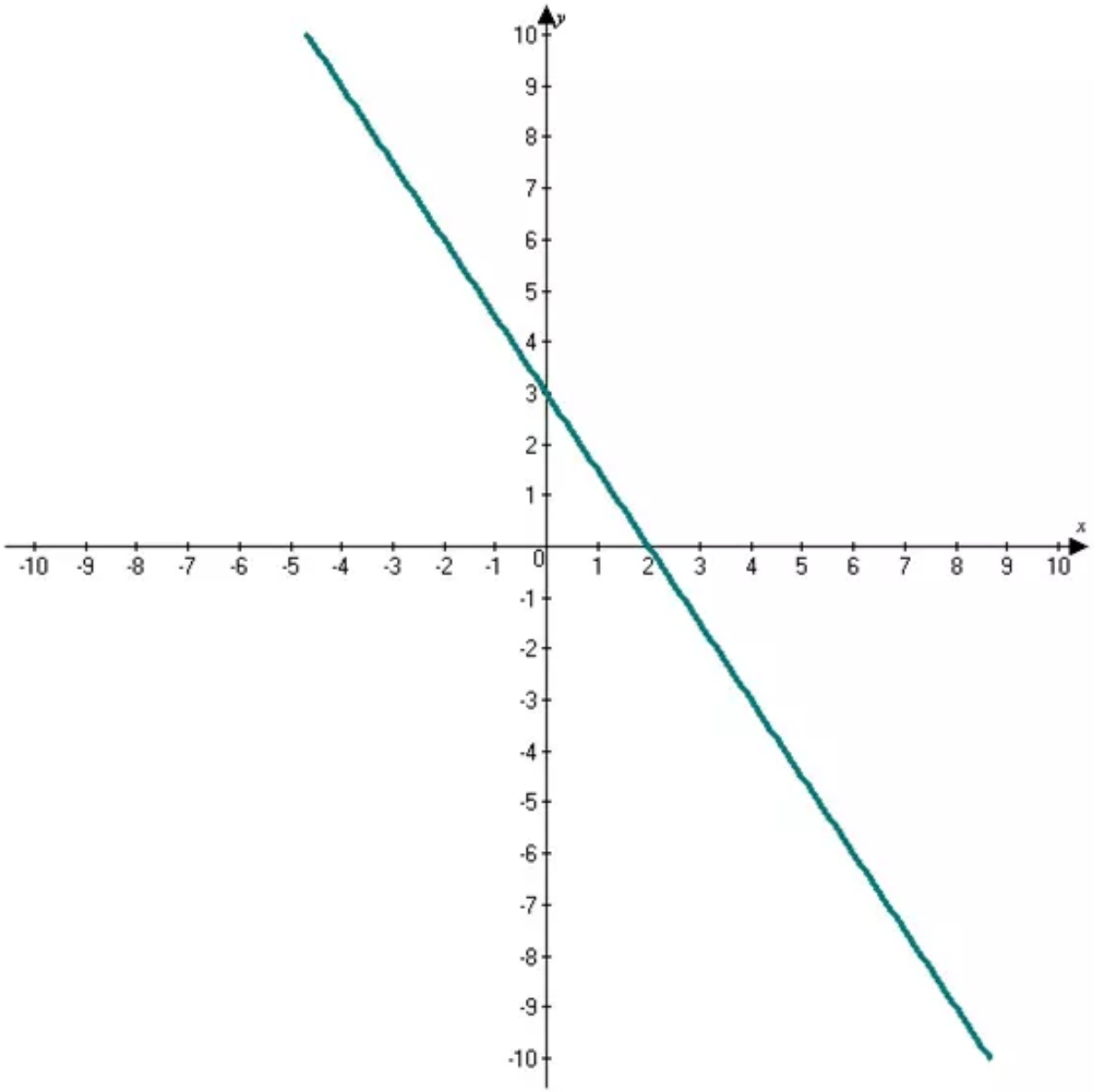
$\frac{-8}{8} = k$

$k = -1$

Hence the required solution of the direct variation is $\boxed{k = -1}$.

Answer 14STP.

Consider the graph of $3x+2y=3$



And find the y intercept

For finding the y intercept replace $x=0$ in the equation $3x+2y=3$

Solve the equation

$$3x+2y=3 \qquad \text{Original equation}$$
$$3(0)+2y=3 \qquad \text{Replace } x=0$$
$$2y=3$$
$$\frac{2}{2}y=\frac{3}{2}$$

By simplification

$$y=\frac{3}{2}$$
$$y=1.5$$

Hence the required solution of y intercept is $\boxed{y=1.5}$.

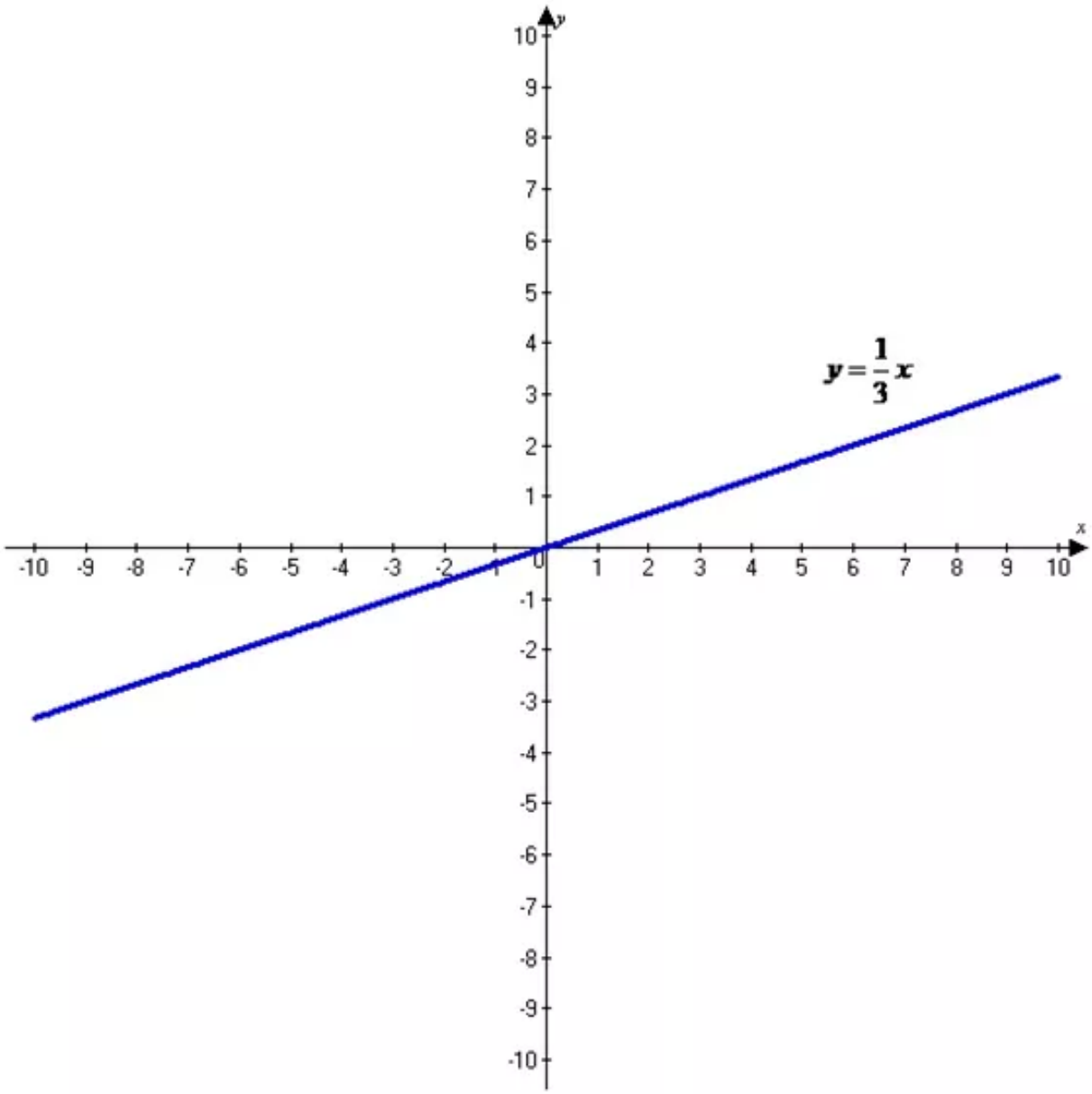
Answer 15E.

Need to find the graph of equation

Given that graph equation

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

The graph of $y=\frac{1}{3}x$ is shown below



Hence the required graph equation is drawn.

Answer 15PT.

Need to find the slope intercept form an equation of the line that satisfies the condition

Given that the equation of the slope $m=-4$

Given that the slope intercept form of an equation of the line y intercept is 3

Formulae of Point slope form

$$y-y_1=m(x-x_1)$$

Slope intercepts form in the form of $y=mx+b$

Substitute the values $x_1=0, y_1=3, m=-4$ in the point slope form

Solve the equation we get

$$y-3=-4(x-0) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y-3=-4x+0$$
$$y-3+3=-4x+3 \qquad \text{Adding 3 on both sides}$$
$$y=-4x+3$$

Hence the required solution of slope-intercept form of equation of the line that satisfies the condition $\boxed{y=-4x+3}$

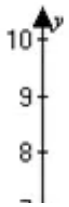
Answer 15STP.

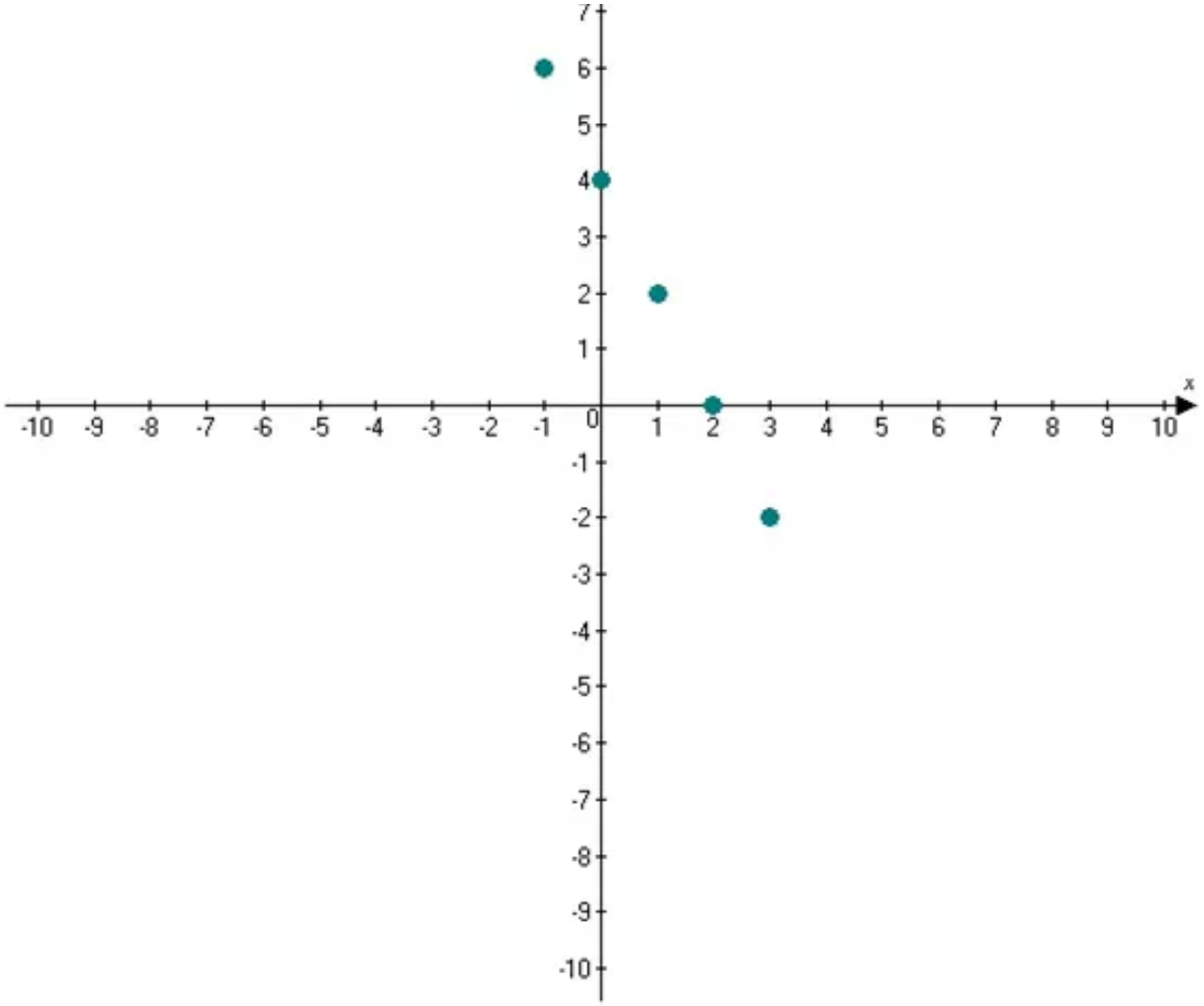
Need to find the y-coordinate of a point $(5,y)$ that line on the graph of the function

Consider the table of ordered pairs shows the coordinates of some of the points on the graph of a function

x	y
-1	6
0	4
1	2
2	0
3	-2

Here draw the graph





Here find the slope

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

Consider the points $(-1,6),(0,4)$ and substitute the values in the point slope formula

Solve the equation

$m=\frac{y_2-y_1}{x_2-x_1}$ Replace $(x_1,y_1)=(-1,6)$ and $(0,4)$

$m=\frac{4-6}{0-(-1)}$ Simplify

$m=\frac{-2}{1}$

$m=-2$

Thus the value is $\boxed{m=-2}$

Slope-intercept form in the form $y = mx + b$

Substitute the values $(x, y) = (-1, 6)$ and $m = -2$ in the slope intercept form $y = mx + b$

Solve the equation

$$6 = (-2)(-1) + b$$
$$6 = 2 + b$$
$$6 - 2 = 2 - 2 + b \qquad \text{Adding } -2 \text{ on both sides}$$
$$b = 4$$

Thus the value is $\boxed{b = 4}$

Here find the y value

Slope-intercept form in the form $y = mx + b$

Substitute the values $x = 5$, $b = 4$, $m = -2$ and in the $y = mx + b$ and solve the equation

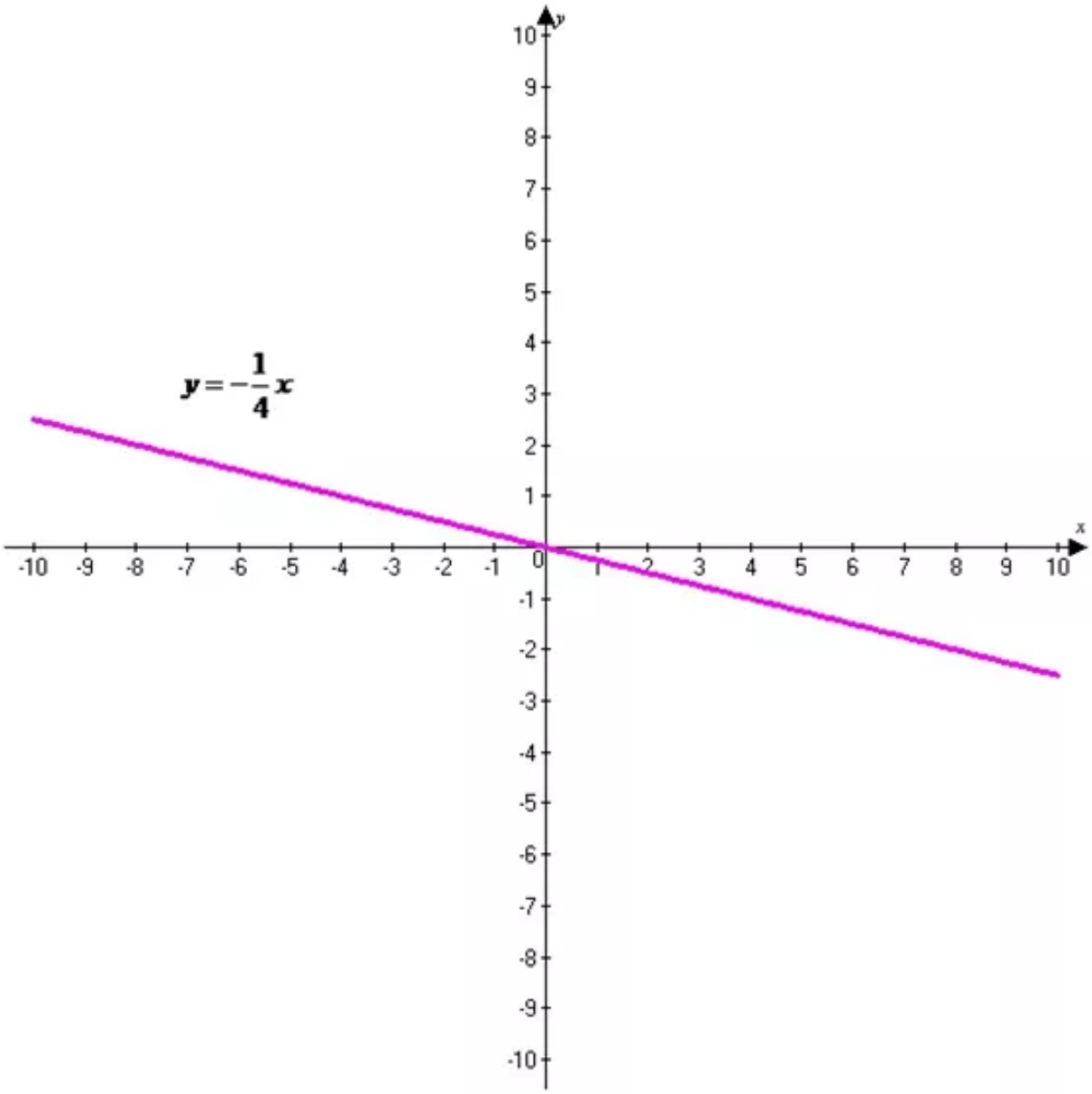
$$y = mx + b$$
$$y = -2(5) + 4$$
$$y = -10 + 4$$
$$y = -6$$

Hence the required solution of the y coordinate lies on the $\boxed{y = -6}$

Answer 16E.

Need to find the graph of equation

The graph of the equation $y=-\frac{1}{4}x$ is shown below



Hence the required equation for the graph is drawn.

Answer 16PT.

Need to find the slope intercept form an equation of the line that satisfies the condition

Given that the slope intercept form of point that passes through the $(-2,-5)$ and $(8,-3)$

Find the slope of the line

Slope formula

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

Substitute the values $x_1=-2, y_1=-5, x_2=8, y_2=-3$ in the slope formula

$$m=\frac{y_2-y_1}{x_2-x_1} \qquad \text{Slope formula}$$

$$m=\frac{-3-(-5)}{8-(-2)}$$

$$m=\frac{-3+5}{8+2}$$

$$m=\frac{2}{10}$$

$$m=\frac{1}{5}$$

Now slope of the line $m=\frac{1}{5}$

Formula of point slope form

$$y-y_1=m(x-x_1)$$

Slope intercept form in the form of $y=mx+b$

Substitute the values $x_1=-2, y_1=-5, m=\frac{1}{5}$ in the point slope formula

$$y-(-5)=\frac{1}{5}(x-(-2))$$

$$y+5=\frac{1}{5}(x+2) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y+5=\frac{1}{5}x+\frac{2}{5}$$

$$y+5-5=\frac{1}{5}x+\frac{2}{5}-5 \qquad \text{Adding } -5 \text{ on both sides}$$

$$y=\frac{1}{5}x-\frac{23}{5}$$

Hence the required solution of slope intercept form of an equation line that passes satisfies the condition $\boxed{y=\frac{1}{5}x-\frac{23}{5}}$

Answer 16STP.

Need to find the slope of the line

Consider the equation $y-3=-2(x+5)$ is written in the point slope form

Her the given equation $y-3=-2(x+5)$ is in the in the form of $y-y_1=m(x-x_1)$

Here slope of the line m by comparing the equation slope of the line $m=-2$

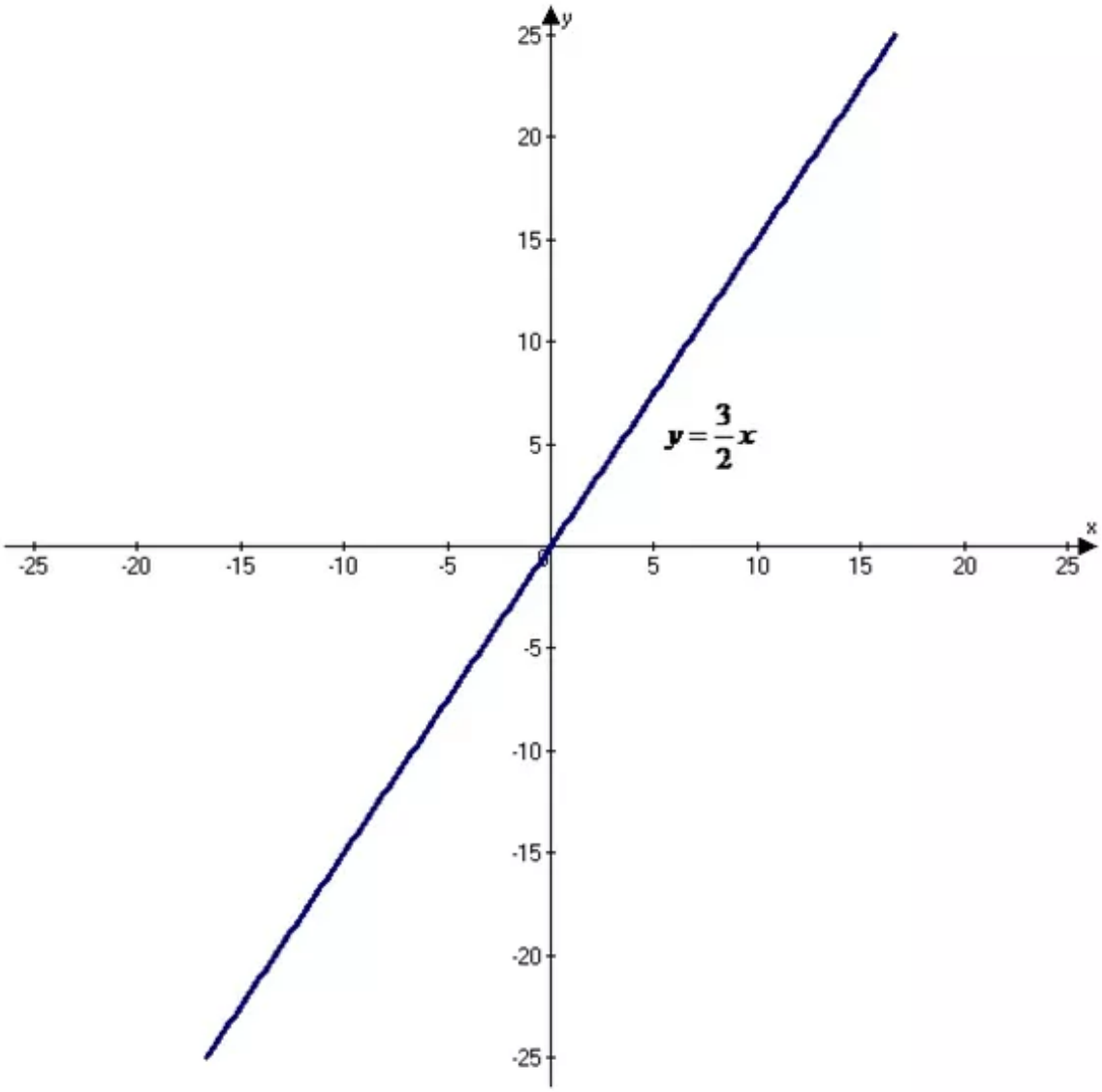
Hence the required solution of the slope of the line $\boxed{m=-2}$

Answer 17E.

Consider the equation $y=\frac{3}{2}x$

Need to graph the equation

The graph of $y=\frac{3}{2}x$ is shown below



Hence the graph for the required equation is drawn.

Answer 17PT.

Need to find the slope intercept form for an equation of the line parallel to the graph of the *given equation that satisfies the condition*

Given that the slope intercept form for an equation of the line parallel to the graph of equation

$3x+7y=4$

Find the slope of the given line

$$3x+7y=4$$

$$3x-3x+7y=4-3x \qquad \text{Adding } -3x \text{ on both sides}$$

$$7y=-3x+4$$

$$\frac{7}{7}y=-\frac{3}{7}x+\frac{4}{7} \qquad \text{Divided 7 on both sides}$$

$$y=-\frac{3}{7}x+\frac{4}{7}$$

Now the slope of the line

$$y=-\frac{3}{7}x+\frac{4}{7}$$

Given that the slope intercept form parallel line passes through the given point

$(5,-2)$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

The line parallel to $y=-\frac{3}{7}x+\frac{4}{7}$ has the same slope $m=-\frac{3}{7}$

Substitute the values $x_1=5, y_1=-2, m=-\frac{3}{7}$ in the point slope form solve the equation we get

$$y-(-2)=-\frac{3}{7}(x-5) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y+2=-\frac{3}{7}x+\frac{15}{7}$$

$$y+2-2=-\frac{3}{7}x+\frac{15}{7}-2 \qquad \text{Adding } -2 \text{ on both sides}$$

$$y=-\frac{3}{7}x+1$$

Hence the required solution slope intercepts form for an equation of the line parallel to the graph of the equation $\boxed{y=-\frac{3}{7}x+1}$

Answer 17STP.

Consider the slope intercept form equation that passes through the point $(5,-8)$

And the slope-intercept form of perpendicular to the graph of equation $-5x+2y=14$

Find the slope of the line

$$-5x+2y=14$$

$$-5x+5x+2y=14+5x \qquad \text{Adding } 5x \text{ on both sides}$$

$$2y=5x+14$$

$$\frac{2}{2}y=\frac{5}{2}x+\frac{14}{2} \qquad \text{Divided by 2 on both sides}$$

By simplification

$$y=\left(\frac{5}{2}\right)x+7$$

The slope of the given line $y=\left(\frac{5}{2}\right)x+7$ as same slope $\frac{5}{2}$ replace with m and the perpendicular of the line is opposite reciprocal $\left(\frac{5}{2}\right)$ or $\left(-\frac{2}{5}\right)$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Substitute the values $(x_1,y_1)=(5,-8)$ and $\mathrm{m}=\left(-\frac{2}{5}\right)$

Use the point slope form and find the equation

$$y-(-8)=-\frac{2}{5}(x-5) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y+8=-\frac{2}{5}x+\frac{10}{5}$$

$$y+8-8=-\frac{2}{5}x+2-8 \qquad \text{Adding } -8 \text{ on both sides}$$

$$y=-\frac{2}{5}x-6$$

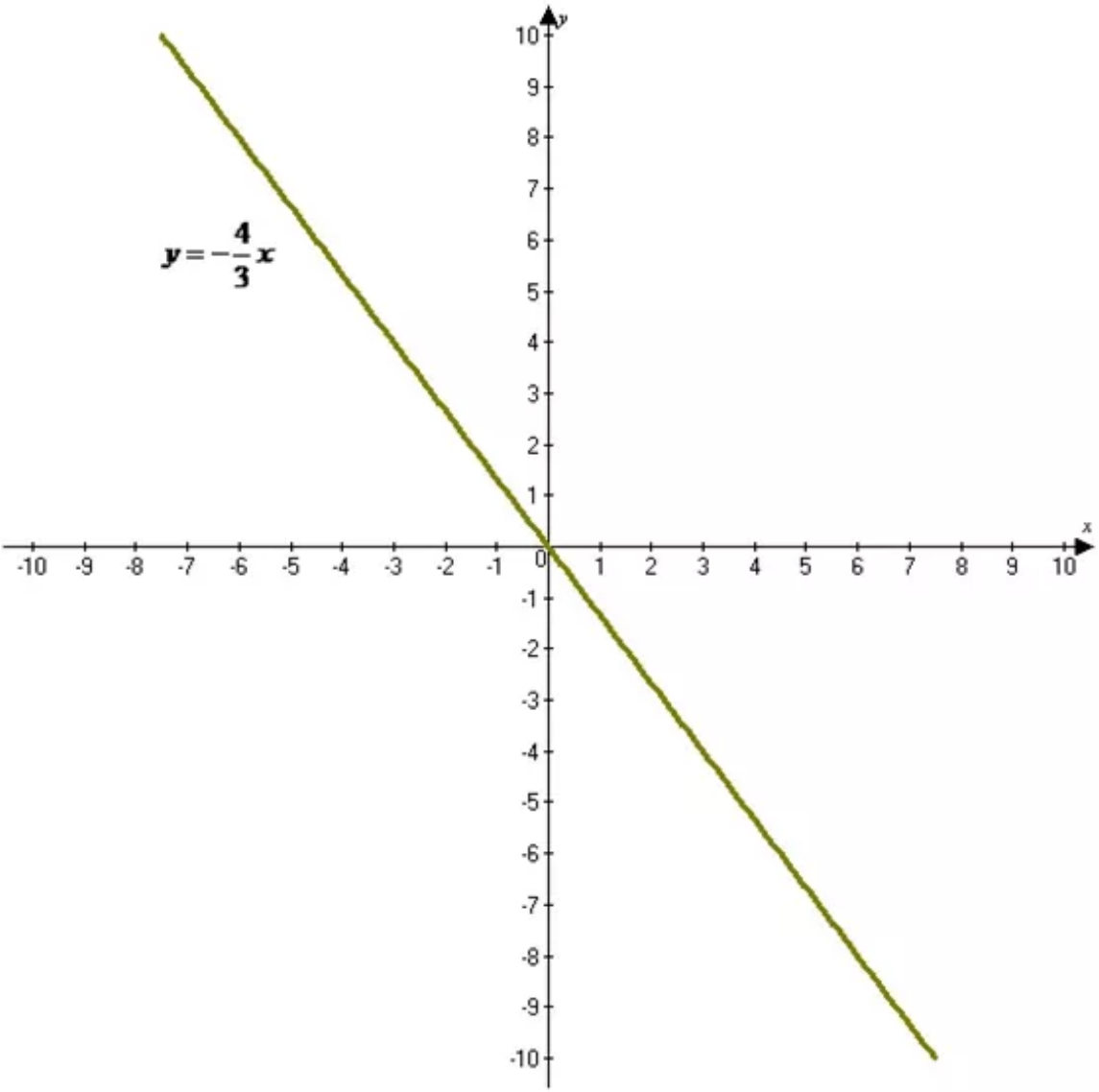
Hence the required solution of slope-intercept form of an equation that passes through the perpendicular to the graph $\boxed{y=\left(-\frac{2}{5}\right)x-6}$.

Answer 18E.

Consider the function $y=-\frac{4}{3}x$

Need to graph the equation

The graph of $y=-\frac{4}{3}x$ is shown below



Hence the required equation for the graph is drawn.

Answer 18PT.

Need to find the slope intercept form of an equation of the line that passes through the line that satisfies the condition

Given that the horizontal line that passes through the point $(5,-8)$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Substitute the point in the $(x_1,y_1)=(5,-8)$ in the point slope formula

We get equation

$y-(-8)=0(x-5)$ Simplify

$y+8=0$

$y=-8$

Hence the required solution of slope intercept form of a horizontal line passes through $\boxed{y=-8}$

Answer 19E.

Need to find the suppose y varies directly as x write a direct variation equation that relates

The direct variation equation

$$y = kx$$

Given that $y = -6$ and $x = 9$

Substitute the values we get

$$y = kx \qquad \text{Direct variation equation}$$
$$-6 = k(9) \qquad \text{Replace y with } -6 \text{ and } x \text{ with } 9$$
$$\frac{-6}{9} = \frac{k(9)}{9} \qquad \text{Divided 9 on both sides}$$
$$-\frac{2}{3} = k \qquad \text{Simplify}$$
$$k = -\frac{2}{3}$$

Substituting $k = -\frac{2}{3}$ in $y = kx$

$$y = kx$$
$$y = \left(-\frac{2}{3}\right)x \qquad \text{Replace } k \text{ by } -\frac{2}{3}$$
$$y = -\frac{2}{3}x$$

Hence the required solution of the direct variation equation that relates $\boxed{y = -\frac{2}{3}x}$

Answer 19PT.

Consider the perpendicular to the graph of $5x - 3y = 9$ and passes through the origin

Find the slope

$$5x - 3y = 9$$
$$5x - 3y - 5x = 9 - 5x \qquad \text{Adding } -5x \text{ on both sides}$$
$$3y = -5x + 9$$
$$\frac{3}{3}y = -\frac{5}{3}x + \frac{9}{3} \qquad \text{Divided 3 on both sides}$$

By simplification

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

Use of the line $y = -\frac{5}{3}x + 3$ and slope $-\frac{5}{3}$ replace m and the perpendicular to the opposite reciprocal of $-\frac{5}{3}$ or $\frac{3}{5}$

Formulae of point slope form

$$y - y_1 = m(x - x_1)$$

Slope-intercept form in the form of

$$y = mx + b$$

The perpendicular line that passes through the origin $(0,0)$

Substitute the values $(x_1, y_1) = (0,0)$ and $m = \frac{3}{5}$ in the point slope form

Solve the equation

$y - 0 = \frac{3}{5}(x - 0)$ By distributive property $a(b+c) = ab + ac$

$y = \frac{3}{5}x - 0$

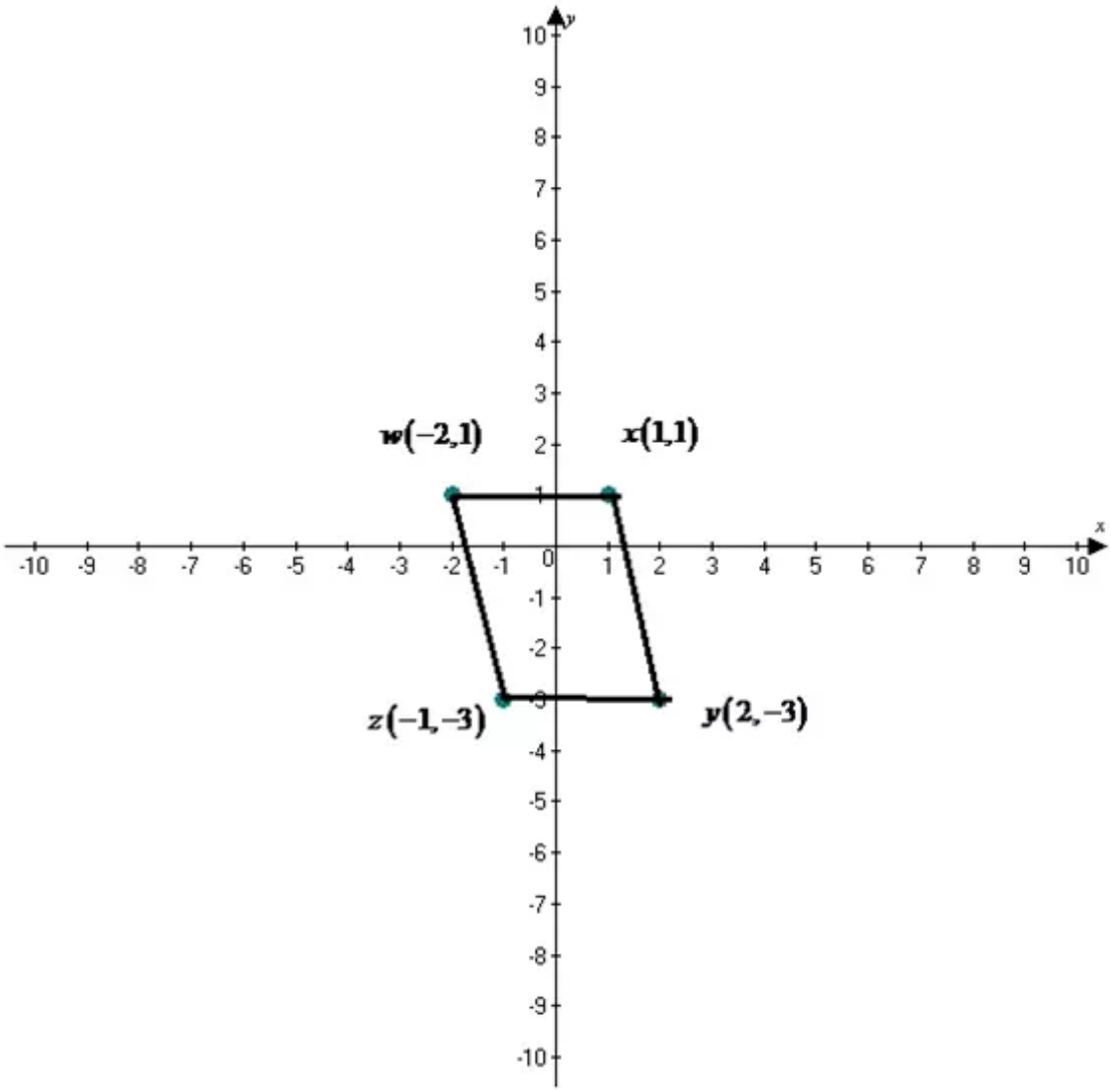
$y = \frac{3}{5}x$

Hence the required solution of the perpendicular to the graph line passes through the origin

$\boxed{y = \frac{3}{5}x}$.

Answer 19STP.

Consider the CD case in the shape of a parallelogram



(a) Consider the point slope form of the equation of the line WZ

Given that the points $(-2,1)$ and $(-1,-3)$

Slope formula

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

Find the slope

Substitute the $(x_1, y_1) = (-2, 1)$ and $(x_2, y_2) = (-1, -3)$ in the slope formula

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

$$m = \frac{-4}{-1+2}$$

$$m = \frac{-4}{1}$$

$$m = -4$$

Slope of the line $m = -4$

Formulae of point slope form

$$y - y_1 = m(x - x_1)$$

Substitute the values $(x_1, y_1) = (-2, 1)$ and $m = -4$ in the point slope form

Solve the equation

$$y - y_1 = m(x - x_1) \qquad \text{Point slope formula}$$

$$y - 1 = -4(x - (-2))$$

$$y - 1 = -4(x + 2)$$

Hence the required solution of the point slope form $\boxed{y - 1 = -4(x + 2)}$

(b) Consider the standard form of the equation of the line containing WZ

Standard form equation in the form of $Ax + By = C$

Formulae of point slope form

$$y - y_1 = m(x - x_1)$$

Substitute the values $(x_1, y_1) = (-2, 1)$ and $m = -4$ in the point slope form

Solve the equation in the standard form

$$y - 1 = -4(x + 2) \qquad \text{By distributive property } a(b + c) = ab + ac$$

$$y - 1 = -4x - 8$$

$$y - 1 - y + 8 = -4x - 8 - y + 8 \qquad \text{Adding } -y + 8 \text{ on both sides}$$

$$7 = -4x - y$$

By simplification

$$7 = -4x - y \qquad \text{Multiply } -1 \text{ on both sides}$$

$$4x + y = -7$$

Hence the required solution is standard form equation $\boxed{4x + y = -7}$.

Answer 20E.

Need to find the suppose y varies directly as x write a direct variation equation that relates

The direct variation equation

$$y = kx$$

Given that $y = 15$ and $x = 2$

Substitute the values we get

$$y = kx \qquad \text{Direct variation equation}$$

$$15 = k(2) \qquad \text{Replace } y \text{ with 15 and } x \text{ with 2}$$

$$\frac{15}{2} = \frac{k(2)}{2} \qquad \text{Divided 2 on both sides}$$

$$\frac{15}{2} = k \qquad \text{Simplify}$$

$$k = \frac{15}{2}$$

Substituting $k = \frac{15}{2}$ in $y = kx$

$$y = kx$$

$$y = \left(\frac{15}{2}\right)x \qquad \text{Replace } k \text{ by } \frac{15}{2}$$

$$y = \frac{15}{2}x$$

Hence the required solution of the direct variation equation that relates $\boxed{y = \frac{15}{2}x}$

Answer 20PT.

Need to find the slope intercept form an equation of the line that passes through the point

Given that the equation of the slope $m = -2$

Given that the slope intercepts form of an equation of the line $(x_1, y_1) = (-4, 3)$

Formulae of Point slope form

$$y - y_1 = m(x - x_1)$$

Slope intercepts form in the form of $y = mx + b$

Substitute the values $x_1 = -4, y_1 = 3, m = -2$ in the point slope form

Solve the equation we get

$$y - 3 = -2(x - (-4)) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 3 = -2(x + 4)$$

$$y - 3 = -2x - 8$$

$$y - 3 + 3 = -2x - 8 + 3 \qquad \text{Adding 3 on both sides}$$

$$y = -2x - 5$$

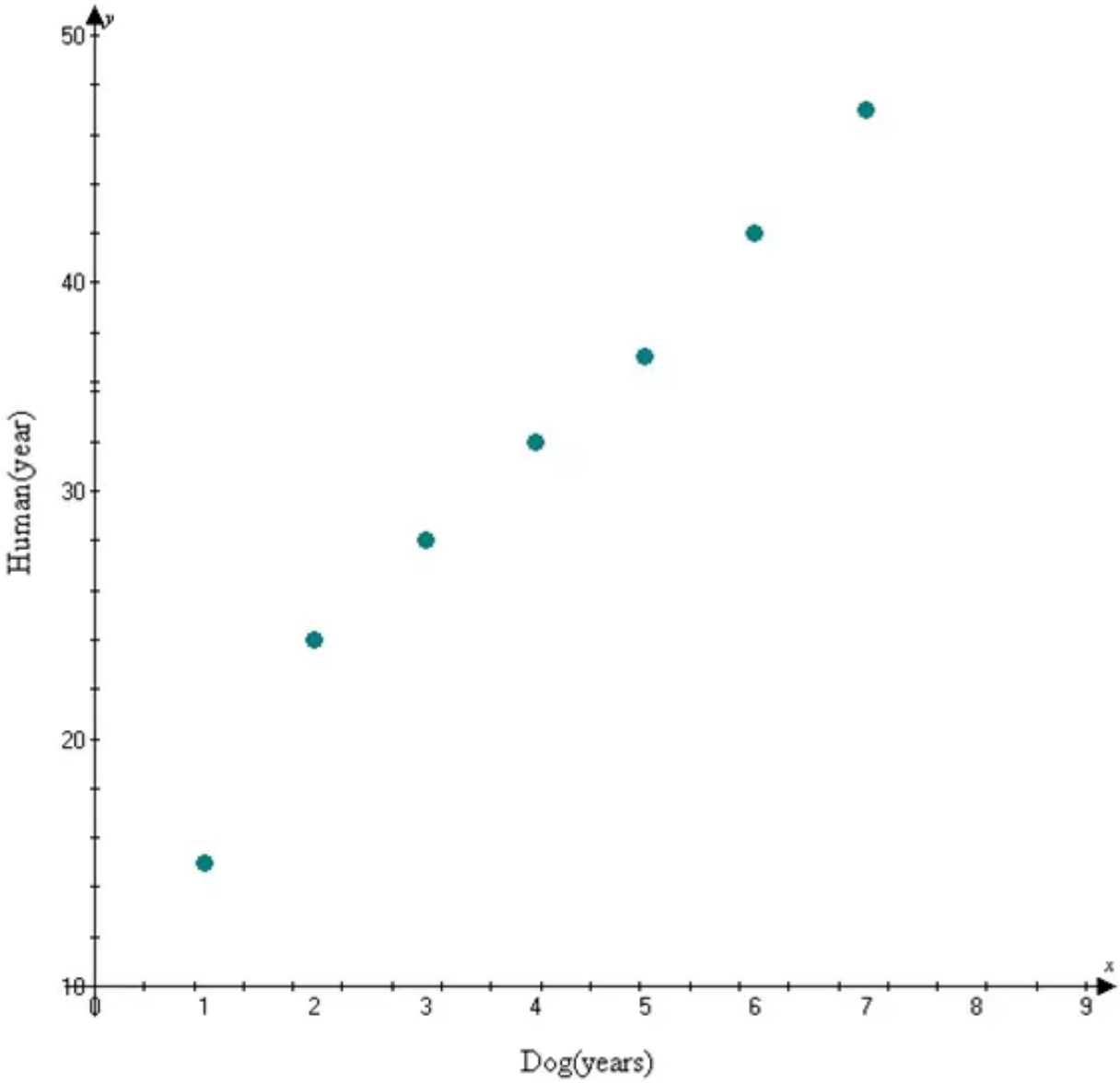
Hence the required solution of slope intercepts form of equation of the line that satisfies the condition $\boxed{y = -2x - 5}$

Answer 21PT.

Consider to draw the scatter plot with the dog on the x axis and the human on the y axis

Dog	1	2	3	4	5	6	7
Human (years)	15	24	28	32	37	42	47

Consider the table draws the scatter plot graph



Let x be the independent variable of number of years

Let y be the dependent variable of the number of weight tons

As the number of dog years increases and the numbers of human years is increases then it is positive correlation

Hence the required solution of scatter plot graph is drawn.

Answer 22E.

Need to find the suppose y varies directly as x write a direct variation equation that relates

The direct variation equation

$$y = kx$$

Given that $y = -6$ and $x = -18$

Substitute the values we get

$$y = kx \qquad \text{Direct variation equation}$$

$$-6 = k(-18) \qquad \text{Replace } y \text{ with } -6 \text{ and } x \text{ with } -18$$

$$\frac{-6}{-18} = \frac{k(-18)}{-18} \qquad \text{Divided } -18 \text{ on both sides}$$

$$\frac{1}{3} = k \qquad \text{Simplify}$$

$$k = \frac{1}{3}$$

Substituting $k = \frac{1}{3}$ in $y = kx$

$$y = kx$$

$$y = \left(\frac{1}{3}\right)x \qquad \text{Replace } k \text{ by } \frac{1}{3}$$

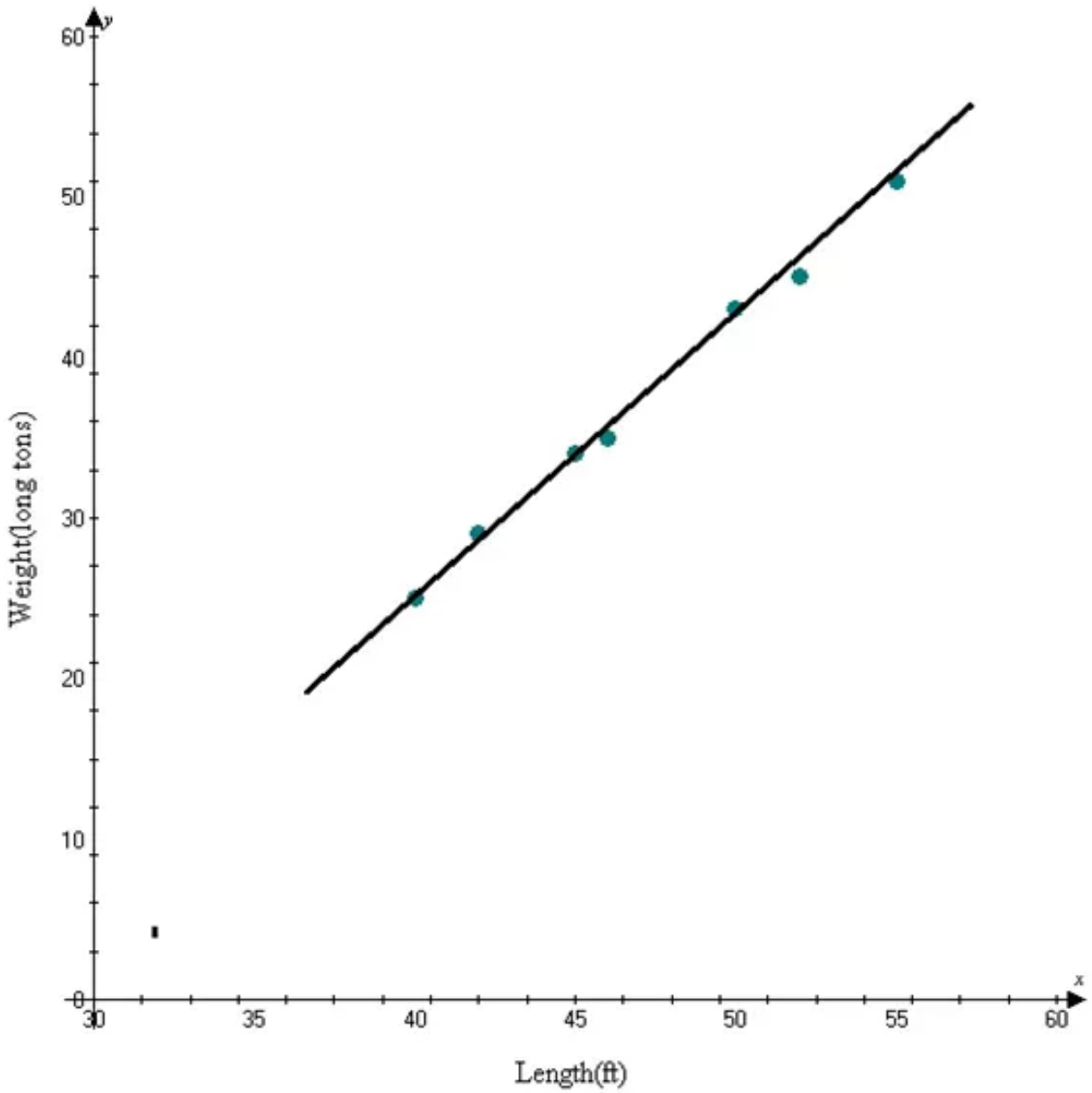
$$y = \frac{1}{3}x$$

Hence the required solution of the direct variation equation that relates $\boxed{y = \frac{1}{3}x}$

Answer 22PT.

Consider to draw a line fit for the data

Dog	1	2	3	4	5	6	7
Human (years)	15	24	28	32	37	42	47



No will line will passes through all the data points

So we draw the line that passes close to the points

As the number of dog years increases and the human numbers of weight tons is increases then it is positive correlation

Hence the required solution of a line of fit for the data.

Answer 23E.

Need to find the suppose y varies directly as x write a direct variation equation that relates

The direct variation equation

$$y = kx$$

Given that $y = -10$ and $x = 5$

Substitute the values we get

$$y = kx \qquad \text{Direct variation equation}$$
$$-10 = k(5) \qquad \text{Replace } y \text{ with } -10 \text{ and } x \text{ with } 5$$
$$\frac{-10}{5} = \frac{k(5)}{5} \qquad \text{Divided 5 on both sides}$$
$$-2 = k \qquad \text{Simplify}$$
$$k = -2$$

Now substituting $k = -2$ in $y = kx$

$$y = kx$$
$$y = (-2)x \qquad \text{Replace } k \text{ by } -2$$
$$y = -2x$$

Hence the required solution of the direct variation equation that relates $\boxed{y = -2x}$

Answer 23PT.

Consider the slope intercept form of an equation for the line of fit

Dog	1	2	3	4	5	6	7
Human (years)	15	24	28	32	37	42	47

Consider the points $(x_1, y_1) = (1,15)$ and $(x_2, y_2) = (2,24)$

And find the slope

Slope formula

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

Substitute the values in the slope formula solve the equation

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$m = \frac{24 - 15}{2 - 1}$$
$$m = \frac{9}{1}$$
$$m = 9$$

And the slope $m=9$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Slope-intercept form in the form of

$$y=mx+b$$

Substitute the values $(x_1,y_1)=(1,15)$ and $m=9$ in the point slope form

$$y-15=9(x-1) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y-15=9x-9$$
$$y-15+15=9x-9+15 \qquad \text{Adding 15 on both sides}$$
$$y=9x+6$$

Hence the required solution of slope- intercepts form of an equation $\boxed{y=9x+6}$.

Answer 24PT.

Consider to find the how many years are comparable

Dog	1	2	3	4	5	6	7
Human (years)	15	24	28	32	37	42	47

Consider the points $(x_1,y_1)=(1,15)$ and $(x_2,y_2)=(2,24)$

And find the slope

Slope formula

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

Substitute the values in the slope formula solve the equation

$$m=\frac{y_2-y_1}{x_2-x_1}$$
$$m=\frac{24-15}{2-1}$$
$$m=\frac{9}{1}$$
$$m=9$$

And the slope $m=9$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Slope-intercept form in the form of

$$y=mx+b$$

Substitute the values $(x_1,y_1)=(1,15)$ and $m=9$ in the point slope form

$$y-15=9(x-1) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y-15=9x-9$$
$$y-15+15=9x-9+15 \qquad \text{Adding 15 on both sides}$$
$$y=9x+6$$

Answer 25E.

Need to find the equation of the line with the given slope and y intercept

Given that y intercept

$$y=2$$

Given that the slope of the line

$$m=3$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Given that $x_1=0, y_1=2, m=3$

Substitute the values in the point slope form then we get

$y-2=3(x-0)$ By distributive property $a(b+c)=ab+ac$

$y-2=3x-0$

$y-2+2=3x+2$ Adding 2 on both sides

$y=3x+2$

Hence the required solution of the equation of the line $\boxed{y=3x+2}$

Answer 25PT.

Consider the line passes through the $(0,4)$ and $(3,0)$

$(A)\ y-4=\frac{4}{3}(x-0)$

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

$(C)\ \frac{x}{3}+\frac{y}{4}=1$

$(D)\ y-0=-\frac{4}{3}(x-3)$

$(E)\ 4x+3y=12$

Substitute the values $(x,y)=(0,4)$ in above all multiple choices

First substitute the point $x=0$ in the option $(A)\ y-4=-\frac{4}{3}(x-0)$

Solve equation

$y-4=-\frac{4}{3}(x-0)$ Original equation

$y-4=-\frac{4}{3}(0-0)$ Replace $x=0$

$y-4=0$ Simplify

$y=4$

Hence it is satisfies the given point

Next substitute the point $x=0$ in the option $(\mathrm{B})\, y=-\frac{4}{3}x+3$

Solve the equation

$y=-\frac{4}{3}(x)+3$ Original equation

$y=-\frac{4}{3}(0)+3$ Replace $x=0$

$y=3$

Hence it is not satisfied the given point

Next substitute the point $x=0$ in the option $(C)\frac{x}{3}+\frac{y}{4}=1$

Solving the equation

$\frac{x}{3}+\frac{y}{4}=1$ Original equation

$\frac{0}{3}+\frac{y}{4}=1$ Replace x with 0

$\frac{y}{4}=1$ Simplify

$y=4$ Multiplying both sides by 4

It satisfied the given point

Next substitute $x=0$ in the option $(D)\, y-0=-\frac{4}{3}(x-3)$

Solving the equation

$y-0=-\frac{4}{3}(x-3)$ Original equation

$y-0=-\frac{4}{3}(0-3)$ Replace x with 0

$y-0=-\frac{4}{3}(-3)$ simplify

$y=4$

It satisfies the given equation

Next substituting $x=0$ in the option $(E)\ \ 4x+3y=12$

Solving the equation

$4x+3y=12$ Original equation

$4(0)+3y=12$ Replace x by 0

$3y=12$ Simplify

$y=4$ Dividing both sides by 3

It also satisfies the given equation

Hence the correct option is $\boxed{\mathrm{B}}$.

Answer 26E.

Need to find the equation of the line with the given slope and y intercept

Given that y intercept

$$y=-3$$

Given that the slope of the line

$$m=1$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Given that $x_1=0, y_1=-3, m=1$

Substitute the values in the point slope form then we get

$$y-(-3)=1(x-0) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y+3=x$$
$$y+3-3=x-3 \qquad \text{Adding } -3 \text{ on both sides}$$
$$y=x-3$$

Hence the required solution of the equation of the line $\boxed{y=x-3}$

Answer 27E.

Need to find the equation of the line with the given slope and y intercept

Given that y intercept

$$y=4$$

Given that the slope of the line

$$m=0$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Given that $x_1=0, y_1=4, m=0$

Substitute the values in the point slope form then we get

$$y-4=0(x-0) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y-4=0$$
$$y=4$$

Hence the required solution of the equation of the line $\boxed{y=4}$

Answer 28E.

Need to find the equation of the line with the given slope and y intercept

Given that y intercept

$$y=2$$

Given that the slope of the line

$$m=\frac{1}{3}$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Given that $x_1=0, y_1=2, m=\frac{1}{3}$

Substitute the values in the point slope form then we get

$$y-2=\frac{1}{3}(x-0) \qquad \text{By distributive property } a(b+c)=ab+ac$$

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

$$y-2+2=\frac{1}{3}x+2 \qquad \text{Adding 2 on both sides}$$

$$y=\frac{1}{3}x+2$$

Hence the required solution of the equation of the line $\boxed{y=\frac{1}{3}x+2}$

Answer 29E.

Need to find the equation of the line with the given slope and y intercept

Given that y intercept

$$y=-0.3$$

Given that the slope of the line

$$m=0.5$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Given that $x_1=0, y_1=-0.3, m=0.5$

Substitute the values in the point slope form then we get

$$y-(-0.3)=0.5(x-0) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y+0.3=0.5x$$

$$y+0.3-0.3=0.5x-0.3 \qquad \text{Adding } -0.3 \text{ on both sides}$$

$$y=0.5x-0.3$$

Hence the required solution of the equation of the line $\boxed{y=0.5x-0.3}$

Answer 30E.

Need to find the equation of the line with the given slope and y intercept

Given that y intercept

$$y = 0.4$$

Given that the slope of the line

$$m = -1.3$$

Formulae of point slope form

$$y - y_1 = m(x - x_1)$$

Given that $x_1 = 0, y_1 = 0.4, m = -1.3$

Substitute the values in the point slope form then we get

$$y - 0.4 = -1.3(x - 0) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 0.4 = -1.3x$$

$$y - 0.4 + 0.4 = -1.3x + 0.4 \qquad \text{Adding 0.4 on both sides}$$

$$y = -1.3x + 0.4$$

Hence the required solution of the equation of the line $\boxed{y = -1.3x + 0.4}$

Answer 31E.

Need to find the graph of equation

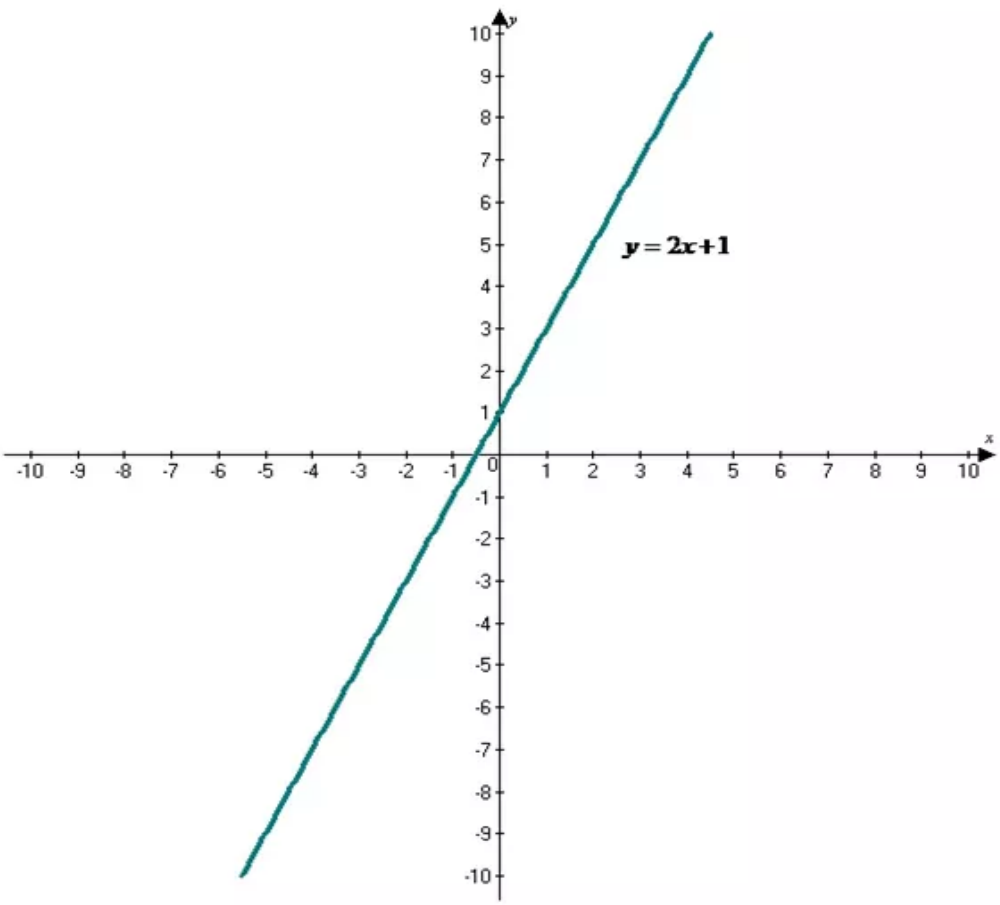
Given that graph equation

$$y = 2x + 1$$

Draw the graph equation

The y intercept is 1 so graph $(0,1)$

The slope is 2 or $\frac{2}{1}$. From $(0,1)$, move up 3 units and right 1 unit. Then draw the line



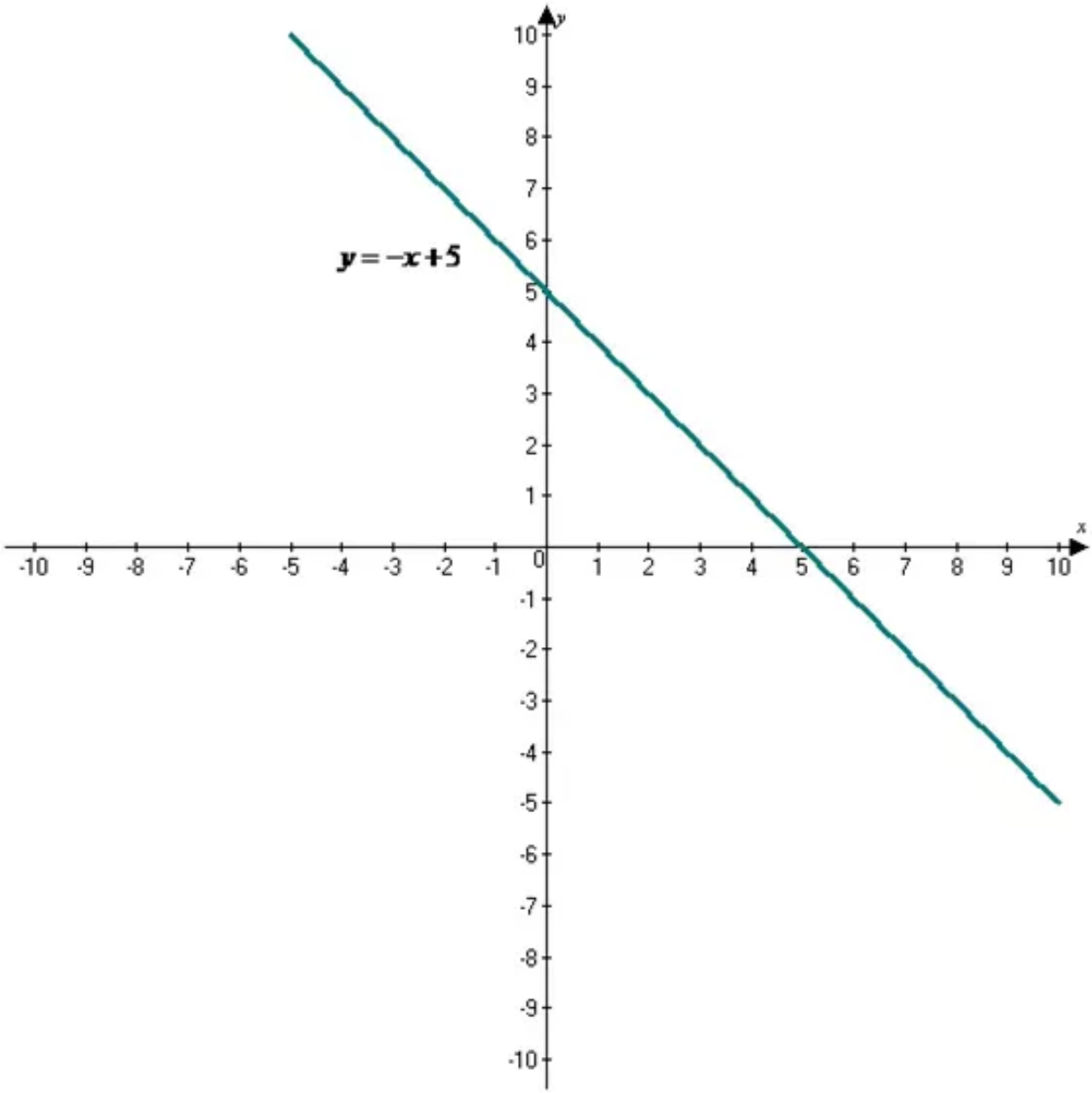
Hence the required solution of the graph is drawn

Answer 32E.

Consider the equation $y = -x + 5$

Need to graph the equation

The graph of $y = -x + 5$ is shown below



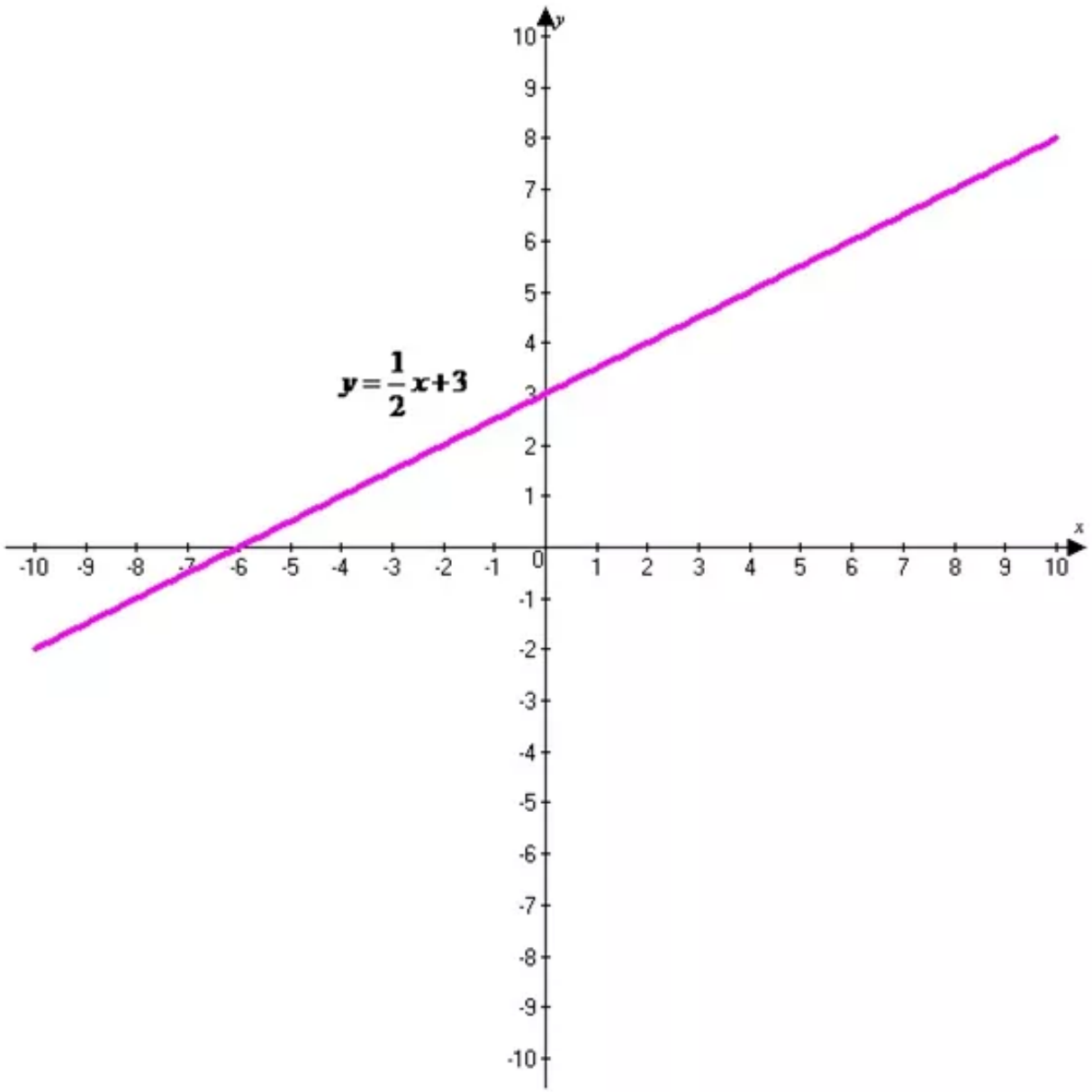
Hence the required graph is drawn for the given equation.

Answer 33E.

Consider the equation $y=\frac{1}{2}x+3$

Need to graph the equation

The graph of $y=\frac{1}{2}x+3$ is shown below



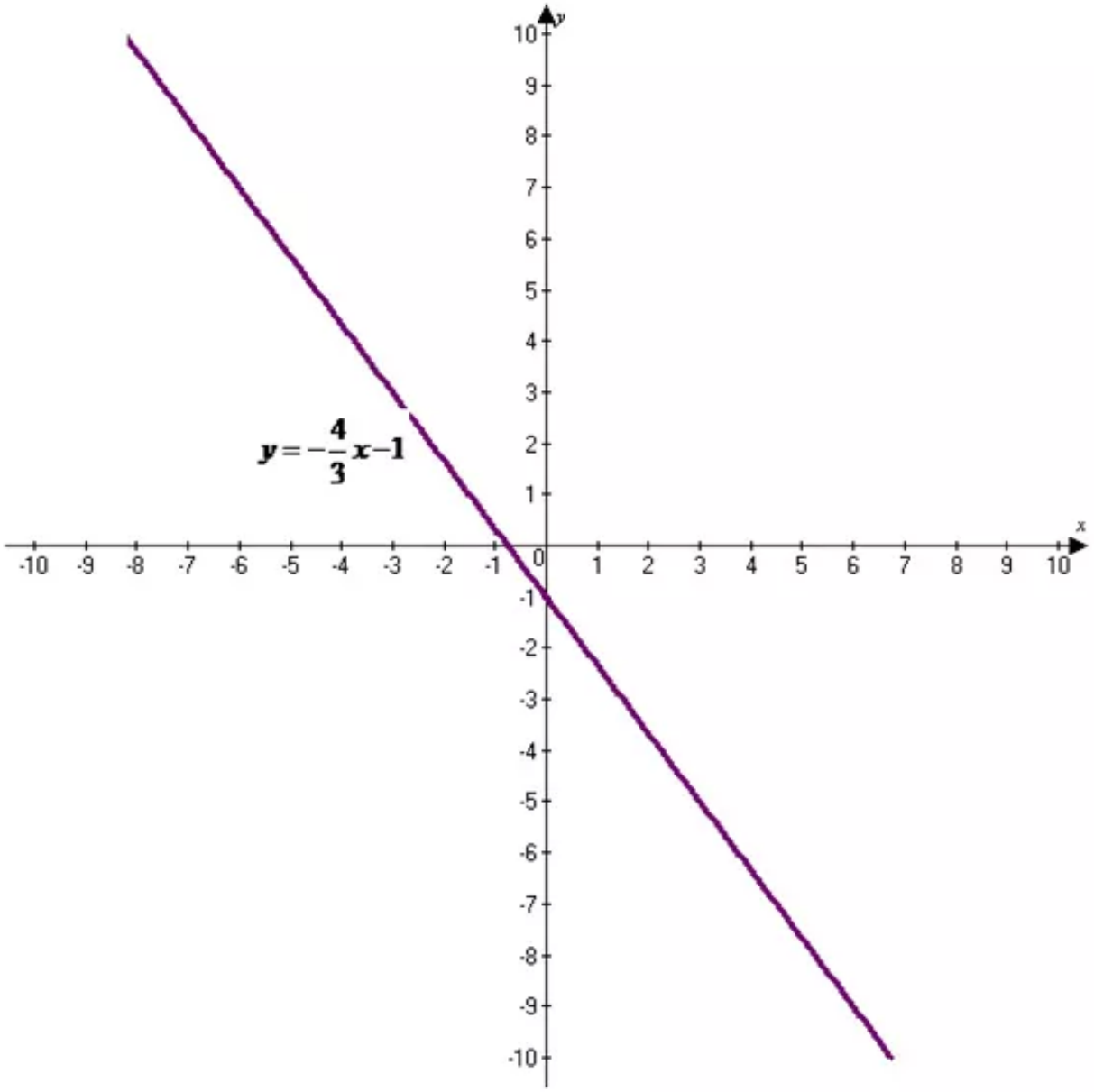
Hence the required graph is drawn for the required equation.

Answer 34E.

Consider the equation $y=-\frac{4}{3}x-1$

Need to graph the equation

The graph of $y=-\frac{4}{3}x-1$ is shown below



Hence the required graph is drawn for the given equation

Answer 35E.

Need to find the graph of equation

Given that graph equation $5x-3y=-3$

Find the slope of equation we get

$$5x-3y=-3$$

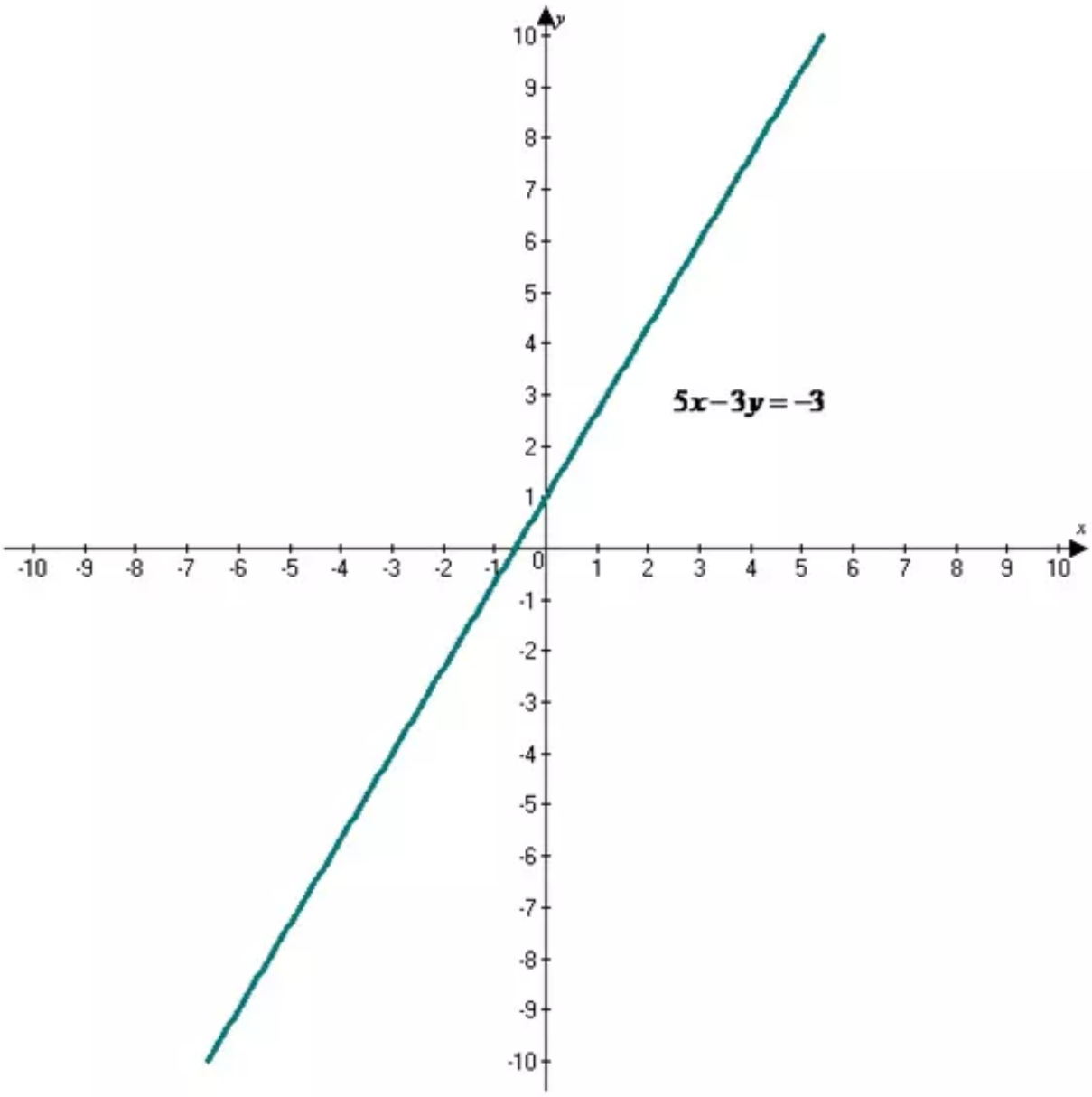
$$5x-5x-3y=-3-5x \qquad \text{Adding } -5x \text{ on both sides}$$

$$-3y=-5x-3$$

$$\frac{-3y}{-3}=\frac{-5}{-3}x-\frac{3}{-3} \qquad \text{Divided } -3 \text{ on both sides}$$

$$y=\frac{5}{3}x+1$$

The graph of $y=\frac{5}{3}x+1$ is shown below



Hence the required graph is drawn for the given equation.

Answer 36E.

Need to find the graph of equation

Given that graph equation $6x+2y=9$

Find the slope of equation we get

$$6x+2y=9$$

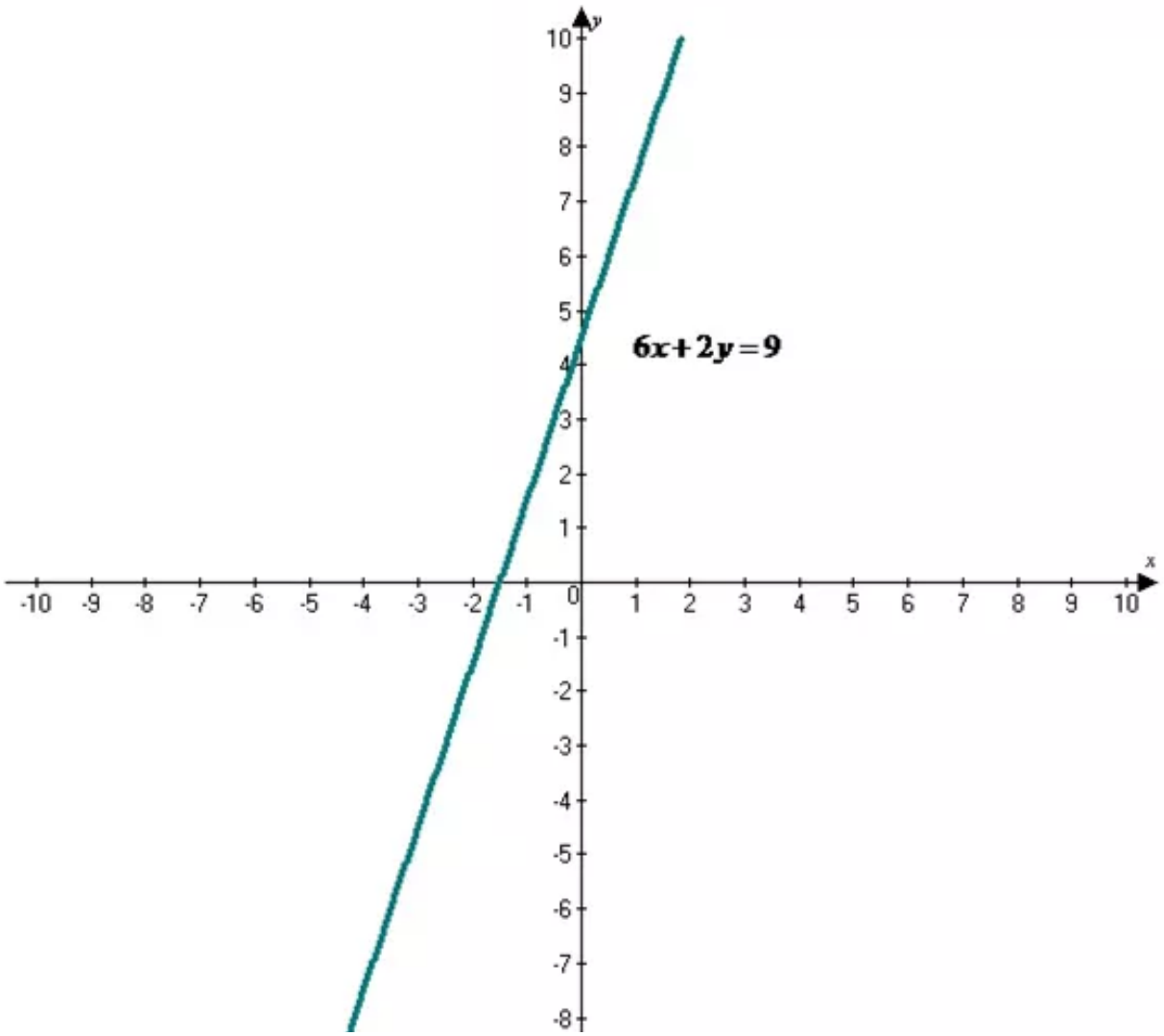
$$6x-6x+2y=9-6x \qquad \text{Adding } -6x \text{ on both sides}$$

$$2y=-6x+9$$

$$\frac{2y}{2}=\frac{-6}{2}x+\frac{9}{2} \qquad \text{Divided 2 on both sides}$$

$$y=-3x+\frac{9}{2}$$

The graph of $y=-3x+\frac{9}{2}$ is shown below



Hence the required solution of graph equation

Answer 37E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(-3,3)$

And slope $m=1$

Slope intercepts form in the form of

$y=mx+b$

Substitute the values $x=-3, y=3, m=1$ in $y=mx+b$

Solve the equation we get

$y=mx+b$ Slope intercept form

$3=1(-3)+b$ Multiply

$3=-3+b$

$3+3=-3+3+b$ Adding 3 on both sides

$b=6$

Hence the required solution of equation of the line that satisfies the slope intercepts form

$\boxed{y=x+6}$

Answer 38E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(0,6)$

And slope $m=-2$

Slope intercepts form in the form of

$y=mx+b$

Substitute the values $x=0, y=6, m=-2$ in $y=mx+b$

Solve the equation we get

$y=mx+b$ Slope intercept form

$6=-2(0)+b$ Multiply

$6=0+b$

$b=6$

Hence the required solution of equation of the line that satisfies the slope intercepts form

$\boxed{y=-2x+6}$

Answer 39E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(1,6)$

And slope $m=\frac{1}{2}$

Slope intercepts form in the form of

$y=mx+b$

Substitute the values $x=1, y=6, m=\frac{1}{2}$ in $y=mx+b$

Solve the equation we get

$y=mx+b$ Slope intercept form

$6=\frac{1}{2}(1)+b$ Multiply

$6=\frac{1}{2}+b$

$6-\frac{1}{2}=\frac{1}{2}-\frac{1}{2}+b$ Adding $-\frac{1}{2}$ on both sides

$b=\frac{11}{2}$

Hence the required solution of equation of the line that satisfies the slope intercepts form

$$\boxed{y=\frac{1}{2}x+\frac{11}{2}}$$

Answer 40E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(4,-3)$

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

Slope intercepts form in the form of

$y=mx+b$

Substitute the values $x=4, y=-3, m=-\frac{3}{5}$ in $y=mx+b$

Solve the equation we get

Hence the required solution of equation of the line that satisfies the slope intercepts form

Answer 41E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(-4,2),(1,12)$

Find the slope of the line

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

Substitute the $x_1=-4, x_2=1, y_1=2, y_2=12$ in the slope formulae

$$m=\frac{y_2-y_1}{x_2-x_1}$$
$$m=\frac{12-2}{1-(-4)}$$
$$m=\frac{10}{5}$$
$$m=2$$

And slope $m=2$

Slope intercepts form in the form of

$$y=mx+b$$

Substitute the values $x=-4, y=2, m=2$ in $y=mx+b$

Solve the equation we get

$y=mx+b$	Slope intercept form
$2=2(-4)+b$	Multiply
$2=-8+b$	
$2+8=-8+8+b$	Adding 8 on both sides
$b=10$	

Hence the required solution of equation of the line that satisfies the slope intercepts form

$\boxed{y=2x+10}$

Answer 42E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(5,0),(4,5)$

Find the slope of the line

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

Substitute the $x_1=5, x_2=4, y_1=0, y_2=5$ in the slope formulae

$$m=\frac{y_2-y_1}{x_2-x_1}$$
$$m=\frac{5-0}{4-5}$$
$$m=\frac{5}{-1}$$
$$m=-5$$

And slope $m=-5$

Slope intercepts form in the form of

$y = mx + b$

Substitute the values $x = 5, y = 0, m = -5$ in $y = mx + b$

Solve the equation we get

$y = mx + b$ Slope intercept form

$0 = -5(5) + b$ Multiply

$0 = -25 + b$

$0 + 25 = -25 + 25 + b$ Adding 25 on both sides

$b = 25$

Hence the required solution of equation of the line that satisfies the slope intercepts form

$\boxed{y = -5x + 25}$

Answer 43E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(8, -1)$

And slope $m = 0$

Slope intercepts form in the form of

$y = mx + b$

Substitute the values $x = 8, y = -1, m = 0$ in $y = mx + b$

Solve the equation we get

$y = mx + b$ Slope intercept form

$-1 = 8(0) + b$ Multiply

$-1 = 0 + b$

$b = -1$

Hence the required solution of equation of the line that satisfies the slope intercepts form

$\boxed{y = -1}$

Answer 44E.

Need to find the equation of the line that satisfies the condition

Given that line passes through the point

$(4,6)$

And slope $m=0$

Slope intercepts form in the form of

$y=mx+b$

Substitute the values $x=4, y=6, m=0$ in $y=mx+b$

Solve the equation we get

$y=mx+b$ Slope intercept form

$6=4(0)+b$ Multiply

$6=0+b$

$b=6$

Hence the required solution of equation of the line that satisfies the slope intercepts form

$\boxed{y=6}$

Answer 45E.

Need to find the point slope form of an equation for a line that passes through each point with the given slope

Given that the point slope form of an equation for a line that passes through the point

$(4,6)$

And slope $m=5$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Given that $x_1=4, y_1=6, m=5$

Substitute the values in the point slope form and solve the equation we get

$y-y_1=m(x-x_1)$ Point slope form

$y-6=5(x-4)$ $x_1=4, y_1=6, m=5$

Hence the required solution the point slope form of an equation for a line that passes through point with the given slope $\boxed{y-6=5(x-4)}$

Answer 46E.

Need to find the point slope form of an equation for a line that passes through each point with the given slope

Given that the point slope form of an equation for a line that passes through the point

$(-1,4)$

And slope $m=-2$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Given that $x_1=-1, y_1=4, m=-2$

Substitute the values in the point slope form and solve the equation we get

$y-y_1=m(x-x_1)$ Point slope form

$y-4=-2(x-(-1))$ $x_1=-1, y_1=4, m=-2$

$y-4=-2(x+1)$

Hence the required solution the point slope form of an equation for a line that passes through point with the given slope $\boxed{y-4=-2(x+1)}$

Answer 47E.

Need to find the point slope form of an equation for a line that passes through each point with the given slope

Given that the point slope form of an equation for a line that passes through the point

$(5,-3)$

And slope $m=\frac{1}{2}$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Given that $x_1=5, y_1=-3, m=\frac{1}{2}$

Substitute the values in the point slope form and solve the equation we get

$y-y_1=m(x-x_1)$ Point slope form

$y-(-3)=\frac{1}{2}(x-5)$ $x_1=5, y_1=-3, m=\frac{1}{2}$

$y+3=\frac{1}{2}(x-5)$

Hence the required solution the point slope form of an equation for a line that passes through point with the given slope $\boxed{y+3=\frac{1}{2}(x-5)}$

Answer 48E.

Need to find the point slope form of an equation for a line that passes through each point with the given slope

Given that the point slope form of an equation for a line that passes through the point

$(1,-4)$

And slope $m=-\frac{5}{2}$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Given that $x_1=1, y_1=-4, m=-\frac{5}{2}$

Substitute the values in the point slope form and solve the equation we get

$y-y_1=m(x-x_1)$ Point slope form

$y-(-4)=-\frac{5}{2}(x-1)$ $x_1=1, y_1=-4, m=-\frac{5}{2}$

$y+4=-\frac{5}{2}(x-1)$

Hence the required solution the point slope form of an equation for a line that passes through point with the given slope $\boxed{y+4=-\frac{5}{2}(x-1)}$

Answer 49E.

Need to find the point slope form of an equation for a line that passes through each point with the given slope

Given that the point slope form of an equation for a line that passes through the point

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

And slope $m=3$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Given that $x_1=\frac{1}{4}, y_1=-2, m=3$

Substitute the values in the point slope form and solve the equation we get

$y-y_1=m(x-x_1)$ Point slope form

$y-(-2)=3\left(x-\frac{1}{4}\right)$ $x_1=\frac{1}{4}, y_1=-2, m=3$

$y+2=3\left(x-\frac{1}{4}\right)$

Hence the required solution the point slope form of an equation for a line that passes through point with the given slope $\boxed{y+2=3\left(x-\frac{1}{4}\right)}$

Answer 50E.

Need to find the point slope form of an equation for a line that passes through each point with the given slope

Given that the point slope form of an equation for a line that passes through the point

$(4,-2)$

And slope $m=0$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Given that $x_1=4, y_1=-2, m=0$

Substitute the values in the point slope form and solve the equation we get

$$\begin{aligned} y-y_1&=m(x-x_1) && \text{Point slope form}\\ y-(-2)&=0(x-4) && x_1=4, y_1=-2, m=0\\ y+2&=0 \end{aligned}$$

Hence the required solution the point slope form of an equation for a line that passes through point with the given slope $\boxed{y+2=0}$

Answer 51E.

Need to find the equation of standard form

Given that the standard form equation

$y-1=2(x+1)$

Formulae of standard form equation

$Ax+By=C$

Given equation is in the form of point slope form

Solve the equation we get

$$\begin{aligned} y-1&=2(x+1) && \text{By distributive property } a(b+c)=ab+ac\\ y-1&=2x+2\\ y-1-y-2&=2x+2-y-2 && \text{Adding } -y-2 \text{ on both sides}\\ -3&=2x-y\\ 2x-y&=-3 \end{aligned}$$

Hence the required solution the equation is in the form of standard form $\boxed{2x-y=-3}$

Answer 52E.

Need to find the equation of standard form

Given that the standard form equation

$$y+6=\frac{1}{3}(x-9)$$

Formulae of standard form equation

$$Ax+By=C$$

Given equation is in the form of point slope form

Solve the equation we get

$$y+6=\frac{1}{3}(x-9) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y+6=\frac{1}{3}x+\frac{9}{3}$$

$$y+6=\frac{1}{3}x+3$$

$$y+6-y-3=\frac{1}{3}x+3-y-3 \qquad \text{Adding } -y-3 \text{ on both sides}$$

By simplification we get

$$3=\frac{1}{3}x-y \qquad \text{simplify}$$

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

Hence the required solution the equation is in the form of standard form $\boxed{\frac{1}{3}x-y=3}$

Answer 53E.

Need to find the equation of standard form

Given that the standard form equation

$$y+4=1.5(x-4)$$

Formulae of standard form equation

$$Ax+By=C$$

Given equation is in the form of point slope form

Solve the equation we get

$$y+4=1.5(x-4) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y+4=1.5x-6$$

$$y+4-y+6=1.5x-6-y+6 \qquad \text{Adding } -y+6 \text{ on both sides}$$

$$10=1.5x-y$$

$$1.5x-y=10$$

Hence the required solution the equation is in the form of standard form $\boxed{1.5x-y=10}$

Answer 54E.

Need to find the slope intercept form for an equation of the line parallel to the graph of the given equation and passing through the given point

Given that the slope intercept form for an equation of the line parallel to the graph of equation

$y = 3x - 2$

Given that the slope intercept form parallel line passes through the given point

$(4,6)$

Formulae of point slope form

$y - y_1 = m(x - x_1)$

The line parallel to $y = 3x - 2$ has the same slope $m = 3$

Substitute the values $x_1 = 4, y_1 = 6, m = 3$ in the point slope form solve the equation we get

$$\begin{aligned} y - 6 &= 2(x - 4) && \text{By distributive property } a(b+c) = ab + ac \\ y - 6 &= 2x - 8 \\ y - 6 + 6 &= 2x - 8 + 6 && \text{Adding 6 on both sides} \\ y &= 2x - 2 \end{aligned}$$

Hence the required solution slope-intercept form for an equation of the line parallel to the graph of the equation $\boxed{y = 2x - 2}$

Answer 55E.

Need to find the slope intercept form for an equation of the line parallel to the graph of the given equation and passing through the given point

Given that the slope intercept form for an equation of the line parallel to the graph of equation

$y = -2x + 4$

Given that the slope intercept form parallel line passes through the given point

$(6,-6)$

Formulae of point slope form

$y - y_1 = m(x - x_1)$

The line parallel to $y = -2x + 4$ has the same slope $m = -2$

Substitute the values $x_1 = 6, y_1 = -6, m = -2$ in the point slope form solve the equation we get

$$\begin{aligned} y - (-6) &= -2(x - 6) && \text{By distributive property } a(b+c) = ab + ac \\ y + 6 &= -2x + 12 \\ y + 6 - 6 &= -2x + 12 - 6 && \text{Adding } -6 \text{ on both sides} \\ y &= -2x + 6 \end{aligned}$$

Hence the required solution slope intercepts form for an equation of the line parallel to the graph of the equation $\boxed{y = -2x + 6}$

Answer 56E.

Need to find the slope intercept form for an equation of the line parallel to the graph of the given equation and passing through the given point

Given that the slope intercept form for an equation of the line parallel to the graph of equation

$y=-6x-1$

Given that the slope intercept form parallel line passes through the given point

$(1,2)$

Formulae of point slope form

$y-y_1=m(x-x_1)$

The line parallel to $y=-6x-1$ has the same slope $m=-6$

Substitute the values $x_1=1, y_1=2, m=-6$ in the point slope form solve the equation we get

$y-2=-6(x-1)$ By distributive property $a(b+c)=ab+ac$

$y-2=-6x+6$

$y-2+2=-6x+6+2$ Adding 2 on both sides

$y=-6x+8$

Hence the required solution slope intercepts form for an equation of the line parallel to the graph of the equation $\boxed{y=-6x+8}$

Answer 57E.

Need to find the slope intercept form for an equation of the line parallel to the graph of the given equation and passing through the given point

Given that the slope intercept form for an equation of the line parallel to the graph of equation

$y=\frac{5}{12}x+2$

Given that the slope intercept form parallel line passes through the given point

$(0,4)$

Formulae of point slope form

$y-y_1=m(x-x_1)$

The line parallel to $y=\frac{5}{12}x+2$ has the same slope $m=\frac{5}{12}$

Substitute the values $x_1=0, y_1=4, m=\frac{5}{12}$ in the point slope form solve the equation we get

$y-4=\frac{5}{12}(x-0)$ By distributive property $a(b+c)=ab+ac$

$y-4=\frac{5}{12}x$

$y-4+4=\frac{5}{12}x+4$ Adding 4 on both sides

$y=\frac{5}{12}x+4$

Hence the required solution slope intercepts form for an equation of the line parallel to the graph of the equation $\boxed{y=\frac{5}{12}x+4}$

Answer 58E.

Need to find the slope intercept form for an equation of the line parallel to the graph of the given equation and passing through the given point

Given that the slope intercept form for an equation of the line parallel to the graph of equation

$4x-y=7$

Find the slope of the given line

$$\begin{aligned} 4x-y&=7\\ 4x-4x-y&=7-4x\\ -y&=-4x+7 \qquad \text{Multiply -1 on both sides}\\ y&=4x-7 \end{aligned}$$

Now the slope of the line

$y=4x-7$

Given that the slope intercept form parallel line passes through the given point

$(2,-1)$

Formulae of point slope form

$y-y_1=m(x-x_1)$

The line parallel to $y=4x-7$ has the same slope $m=4$

Substitute the values $x_1=2, y_1=-1, m=4$ in the point slope form solve the equation we get

$$\begin{aligned} y-(-1)&=4(x-2) \qquad \text{By distributive property } a(b+c)=ab+ac\\ y+1&=4x-8\\ y+1-1&=4x-8-1 \qquad \text{Adding } -1 \text{ on both sides}\\ y&=4x-9 \end{aligned}$$

Hence the required solution slope intercepts form for an equation of the line parallel to the graph of the equation $\boxed{y=4x-9}$

Answer 59E.

Need to find the slope intercept form for an equation of the line parallel to the graph of the given equation and passing through the given point

Given that the slope intercept form for an equation of the line parallel to the graph of the equation

$3x+9y=1$

Find the slope of the line

$$\begin{aligned} 3x+9y&=1\\ 3x-3x+9y&=1-3x \qquad \text{Adding } -3x \text{ on both sides}\\ 9y&=-3x+1\\ \frac{9y}{9}&=-\frac{3}{9}x+\frac{1}{9} \qquad \text{Divided 9 on both sides}\\ y&=-\frac{1}{3}x+\frac{1}{9} \end{aligned}$$

Now slope of the line

$$y=-\frac{1}{3}x+\frac{1}{9}$$

Given that slope intercept of the line parallel to the point

$$(3,0)$$

The line parallel to $y=-\frac{1}{3}x+\frac{1}{9}$ has the same slope $m=-\frac{1}{3}$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Substitute the values $x_1=3, y_1=0, m=-\frac{1}{3}$ in the point slope form solve the equation we get

$$y-0=-\frac{1}{3}(x-3) \qquad \text{By distributive property } a(b+c)=ab+ac$$

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

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

Hence the required solution slope-intercept form for an equation of the line parallel to the graph of the given equation $\boxed{y=-\frac{1}{3}x+1}$

Answer 60E.

Need to find the slope intercept form for an equation of the line perpendicular to the graph of the given equation and passing through the given point

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given equation

$$y=4x+2$$

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given point

$$(1,3)$$

The line perpendicular to the $y=4x+2$ has the same slope 4 so slope of the line perpendicular to this line is opposite reciprocal of 4 or $-\frac{1}{4}$

Now we get slope of the line

$$m=-\frac{1}{4}$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Substitute the values $x_1=1, y_1=3$ and $m=-\frac{1}{4}$ in the point slope form and solve the equation we get

$$y-3=-\frac{1}{4}(x-1) \qquad \text{By distributive property } a(b+c)=ab+ac$$

$$y-3=-\frac{1}{4}x+\frac{1}{4}$$

$$y-3+3=-\frac{1}{4}x+\frac{1}{4}+3 \qquad \text{Adding 3 on both sides}$$

$$y=-\frac{1}{4}x+\frac{13}{4}$$

Hence the required solution the slope intercept form for an equation line is perpendicular to the graph of the given equation $\boxed{y=-\frac{1}{4}x+\frac{13}{4}}$

Answer 61E.

Need to find the slope intercept form for an equation of the line perpendicular to the graph of the given equation and passing through the given point

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given equation

$y=-2x-7$

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given point

$(0,-3)$

The line perpendicular to the $y=-2x-7$ has the same slope -2 so slope of the line perpendicular to this line is opposite reciprocal of -2 or $\frac{1}{2}$

Now we get slope of the line

$m=\frac{1}{2}$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Substitute the values $x_1=0, y_1=-3$ and $m=\frac{1}{2}$ in the point slope form and solve the equation we get

$y-(-3)=\frac{1}{2}(x-0)$ By distributive property $a(b+c)=ab+ac$

$y+3=\frac{1}{2}x-0$

$y+3-3=\frac{1}{2}x-3$ Adding -3 on both sides

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

Hence the required solution the slope intercept form for an equation line is perpendicular to the graph of the given equation $\boxed{y=\frac{1}{2}x-3}$

Answer 62E.

Need to find the slope intercept form for an equation of the line perpendicular to the graph of the given equation and passing through the given point

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given equation

$y = 0.4x + 1$

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given point

$(2, -5)$

The line perpendicular to the $y = 0.4x + 1$ has the same slope 0.4 so slope of the line perpendicular to this line is opposite reciprocal of 0.4 or $-\frac{1}{0.4}$

Now we get slope of the line

$$m = -\frac{1}{0.4}$$

Formulae of point slope form

$$y - y_1 = m(x - x_1)$$

Substitute the values $x_1 = 2, y_1 = -5$ and $m = -\frac{1}{0.4}$ in the point slope form and solve the equation we get

$$y - (-5) = -\frac{1}{0.4}(x - 2)$$ By distributive property $a(b + c) = ab + ac$

$$y + 5 = -\frac{1}{0.4}x + \frac{2}{0.4}$$

$$y + 5 - 5 = -\frac{1}{0.4}x + 5 - 5$$ Adding -5 on both sides

$$y = -\frac{1}{0.4}x + 0$$

$$y = -\frac{1}{0.4}x$$

Hence the required solution the slope intercept form for an equation line is perpendicular to the graph of the given equation $\boxed{y = -\frac{1}{0.4}x}$

Answer 63E.

Need to find the slope intercept form for an equation of the line perpendicular to the graph of the given equation and passing through the given point

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given equation

$$2x-7y=1$$

Find the slope of the line

$$\begin{aligned} 2x-7y&=1\\ 2x-2x-7y&=1-2x \qquad \text{Adding } -2x \text{ on both sides}\\ -7y&=-2x+1\\ -\frac{7}{-7}y&=-\frac{2}{-7}x+\frac{1}{-7} \qquad \text{Divided } -7 \text{ on both sides}\\ y&=\frac{2}{7}x-\frac{1}{7} \end{aligned}$$

Now slope of the line $y=\frac{2}{7}x-\frac{1}{7}$

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given point

$$(-4,0)$$

The line perpendicular to the $y=\frac{2}{7}x-\frac{1}{7}$ has the same slope $\frac{2}{7}$ so slope of the line perpendicular to this line is opposite reciprocal of $\frac{2}{7}$ or $-\frac{7}{2}$

Now we get slope of the perpendicular line

$$m=-\frac{7}{2}$$

Formulae of point slope form

$$y-y_1=m(x-x_1)$$

Substitute the values $x_1=-4, y_1=0$ and $m=-\frac{7}{2}$ in the point slope form and solve the equation we get

$$\begin{aligned} y-0&=-\frac{7}{2}(x-(-4)) \qquad \text{By distributive property } a(b+c)=ab+ac\\ y&=-\frac{7}{2}x-\frac{28}{2}\\ y&=-\frac{7}{2}x-14 \end{aligned}$$

Hence the required solution the slope intercept form for an equation line is perpendicular to the graph of the given equation $\boxed{y=-\frac{7}{2}x-14}$

Answer 64E.

Need to find the slope intercept form for an equation of the line perpendicular to the graph of the given equation and passing through the given point

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given equation

$8x-3y=7$

Find the slope of the line

$$\begin{aligned} 8x-3y&=7\\ 8x-8x-3y&=7-8x && \text{Adding } -8x \text{ on both sides}\\ -3y&=-8x+7\\ -\frac{3}{-3}y&=-\frac{8}{-3}x+\frac{7}{-3} && \text{Divided } -3 \text{ on both sides}\\ y&=\frac{8}{3}x-\frac{7}{3} \end{aligned}$$

Now slope of the line $y=\frac{8}{3}x-\frac{7}{3}$

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given point

$(4,5)$

The line perpendicular to the $y=\frac{8}{3}x-\frac{7}{3}$ has the same slope $\frac{8}{3}$ so slope of the line perpendicular to this line is opposite reciprocal of $\frac{8}{3}$ or $-\frac{3}{8}$

Now we get slope of the perpendicular line

$m=-\frac{3}{8}$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Substitute the values $x_1=4, y_1=5$ and $m=-\frac{3}{8}$ in the point slope form and solve the equation we get

$$\begin{aligned} y-5&=-\frac{3}{8}(x-4) && \text{By distributive property } a(b+c)=ab+ac\\ y-5&=-\frac{3}{8}x+\frac{12}{8} && \text{Simplify}\\ y-5&=-\frac{3}{8}x+\frac{3}{2}\\ y-5+5&=-\frac{3}{8}x+\frac{3}{2}+5 && \text{Adding 5 on both sides}\\ y&=-\frac{3}{8}x+\frac{13}{2} \end{aligned}$$

Hence the required solution the slope intercept form for an equation line is perpendicular to the graph of the given equation $\boxed{y=-\frac{3}{8}x+\frac{13}{2}}$

Answer 65E.

Need to find the slope intercept form for an equation of the line perpendicular to the graph of the given equation and passing through the given point

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given equation

$5y=-x+1$

Find the slope of the line

$5y=-x+1$

$\frac{5}{5}y=-\frac{1}{5}x+\frac{1}{5}$ Divided by 5 on both sides

$y=-\frac{1}{5}x+\frac{1}{5}$

Now slope of the line $y=-\frac{1}{5}x+\frac{1}{5}$

Given that the slope intercepts form for an equation of the line perpendicular to the graph of the given point

$(2,-5)$

The line perpendicular to the $y=-\frac{1}{5}x+\frac{1}{5}$ has the same slope $-\frac{1}{5}$ so slope of the line perpendicular to this line is opposite reciprocal of $-\frac{1}{5}$ or 5

Now we get slope of the perpendicular line

$m=5$

Formulae of point slope form

$y-y_1=m(x-x_1)$

Substitute the values $x_1=2, y_1=-5$ and $m=5$ in the point slope form and solve the equation we get

$y-(-5)=5(x-2)$ By distributive property $a(b+c)=ab+ac$

$y+5=5x-10$

$y+5-5=5x-10-5$ Adding -5 on both sides

$y=5x-15$

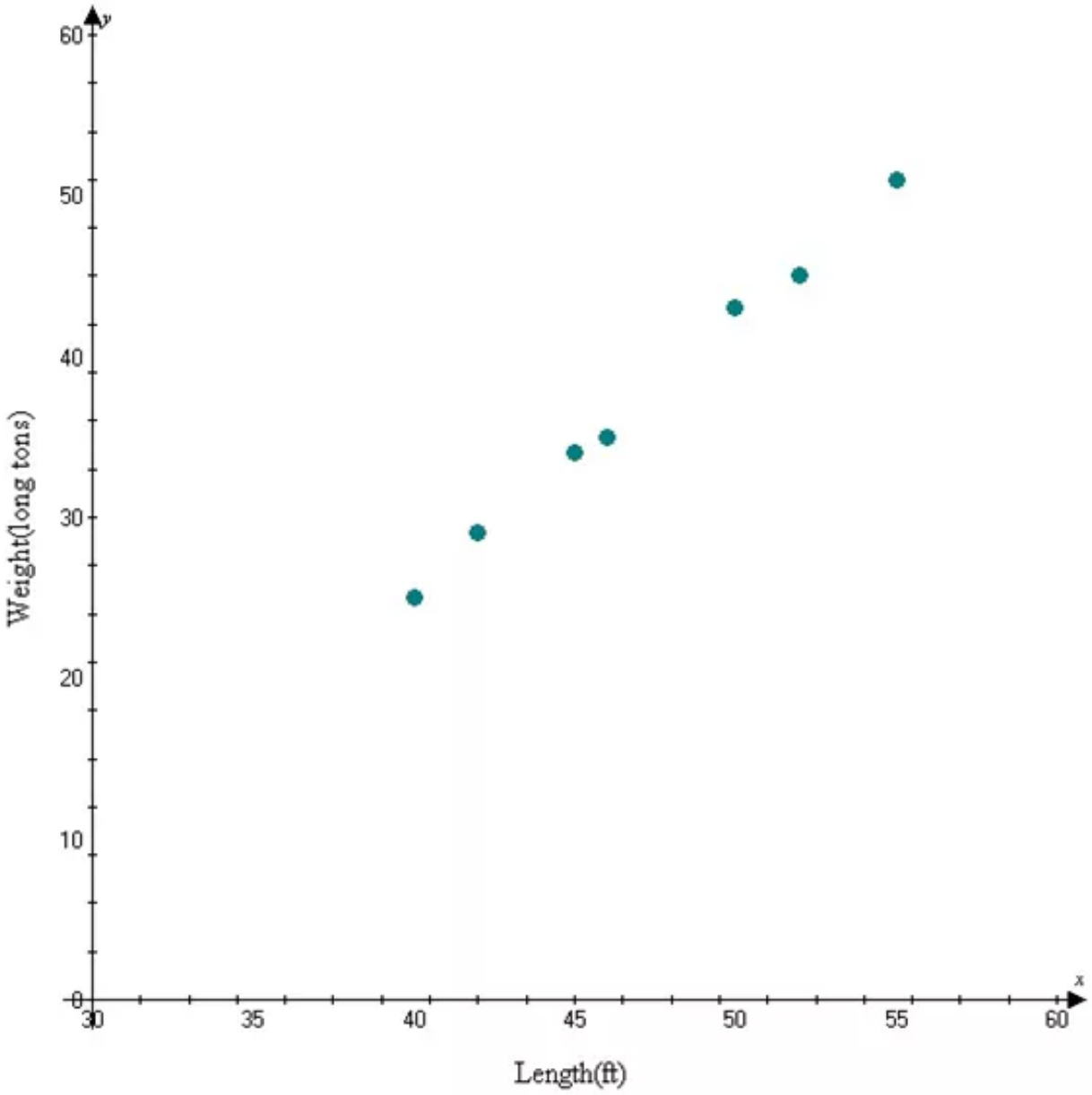
Hence the required solution the slope intercept form for an equation line is perpendicular to the graph of the given equation $\boxed{y=5x-15}$

Answer 66E.

Consider to draw the scatter plot with the length on the x axis and the weight on the y axis

Length (ft)	40	42	45	46	50	52	55
Weight (long tons)	25	29	34	35	43	45	51

Consider the table draws the scatter plot graph



Let x be the independent variable of number of years

Let y be the dependent variable of the number of weight tons

As the number of years increases and the numbers of weight tons is increases then it is positive correlation

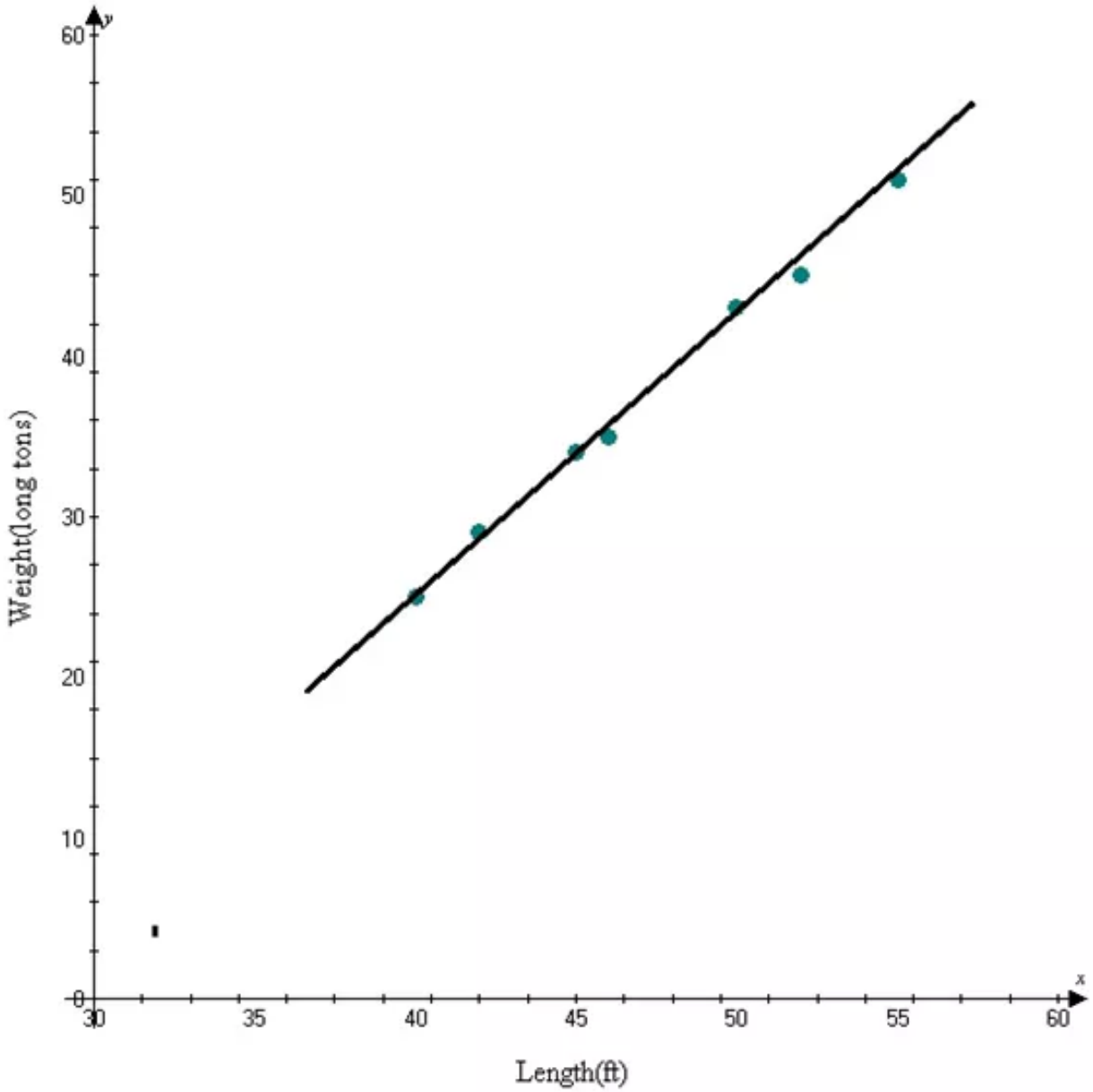
Hence the required solution of scatter plot graph is drawn.

Answer 67E.

Consider to draw a line fit for the data

Length (ft)	40	42	45	46	50	52	55
Weight (long tons)	25	29	34	35	43	45	51

Consider the table draws the line fit for the data



Here the line passes through all the data points

So we draw the line that passes close to the points

As the number of years increases and the numbers of weight tons is increases then it is positive correlation

Hence the required solution of a line of fit for the data.

Answer 68E.

Consider the slope intercept form of an equation for the line of fit

Length (ft)	40	42	45	46	50	52	55
Weight (long tons)	25	29	34	35	43	45	51

Consider the points $(x_1, y_1) = (40, 25)$ and $(x_2, y_2) = (55, 51)$

And find the slope

Slope formula

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

Substitute the values in the slope formula solve the equation

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$m = \frac{51 - 25}{55 - 40}$$
$$m = \frac{26}{15}$$
$$m = 1.73$$

And the slope $m = 1.73$

Formulae of point slope form

$$y - y_1 = m(x - x_1)$$

Slope-intercept form in the form of

$$y = mx + b$$

Substitute the values $(x_1, y_1) = (40, 25)$ and $m = 1.73$ in the point slope form

$$y - 25 = 1.73(x - 40) \qquad \text{By distributive property } a(b + c) = ab + ac$$
$$y - 25 = 1.73x - 69.2$$
$$y - 25 + 25 = 1.73x - 69.2 + 25 \qquad \text{Adding 25 on both sides}$$
$$y = 1.73x - 44.2$$

Hence the required solutions for slope-intercept form of an equation $\boxed{y = 1.73x - 44.2}$.

Answer 69E.

Consider to predict the weight humpback whale

The weight of the humpback whale is 48-foot

Let us take $x = 48$

Use the equation of the line fit for the data $y = 1.73x - 44.2$

Substitute the x value in the line fit for the equation

$y = 1.73x - 44.2$ Original equation

$y = 1.73x(48) - 44.2$ Replace $x = 48$

$y = 83.04 - 44.2$ Simplify

$y = 38.84$

Hence the required solution of 48-foot humpback whale is $\boxed{y = 38.84}$.

Answer 70E.

Consider to predict the weight humpback whale

The weight of the humpback whale is 12-foot

Let us take $x = 12$

Use the equation of the line fit for the data $y = 1.73x - 44.2$

Substitute the x value in the line fit for the equation

$y = 1.73x - 44.2$ Original equation

$y = 1.73(12) - 44.2$ Replace $x = 12$

$y = 20.76 - 44.2$ Simplify

$y = -23.44$

Hence the required solution of 48-foot humpback whale is $\boxed{y = -23.44}$.