Chapter 5. Analyzing Linear Equations

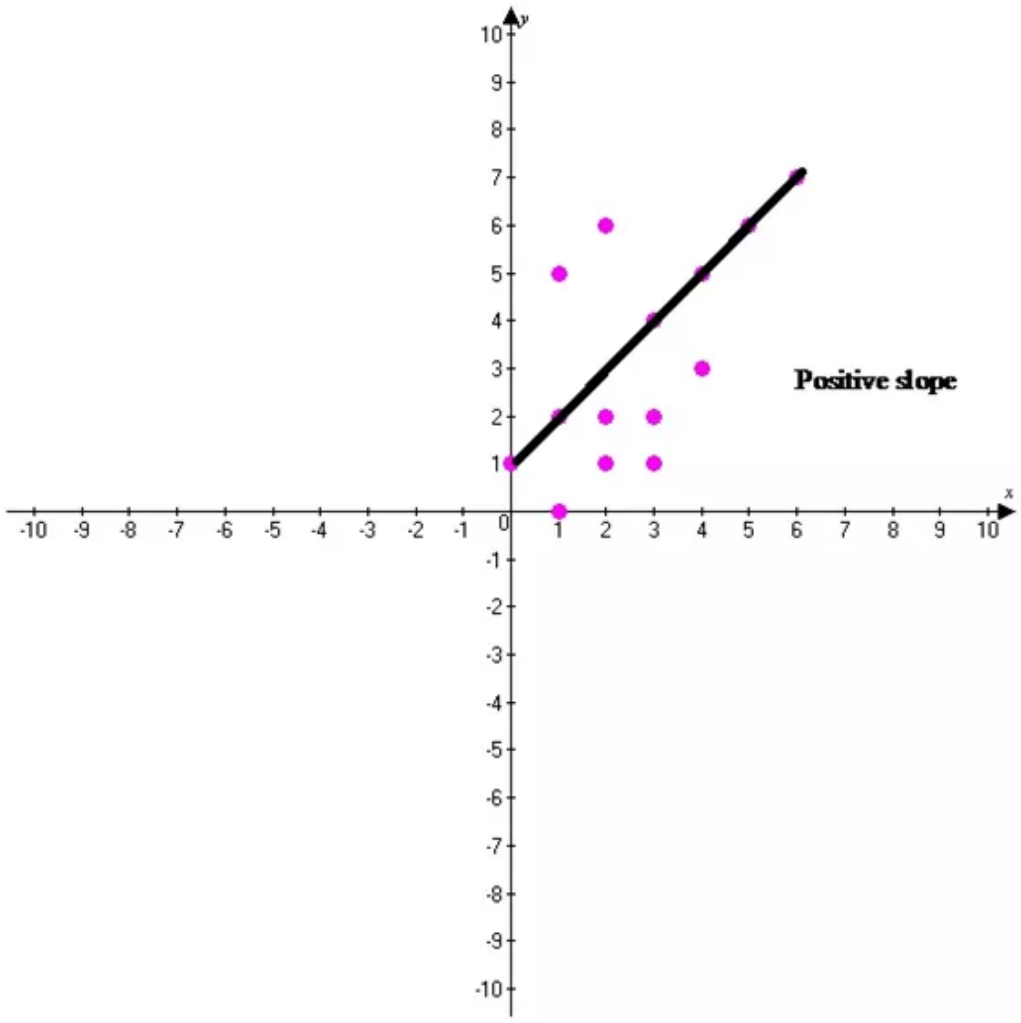
Ex. 5.7

Answer 1CU.

Need to find the how to determine whether a scatter plot has a positive or negative 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

First we discuss about the positive correlation

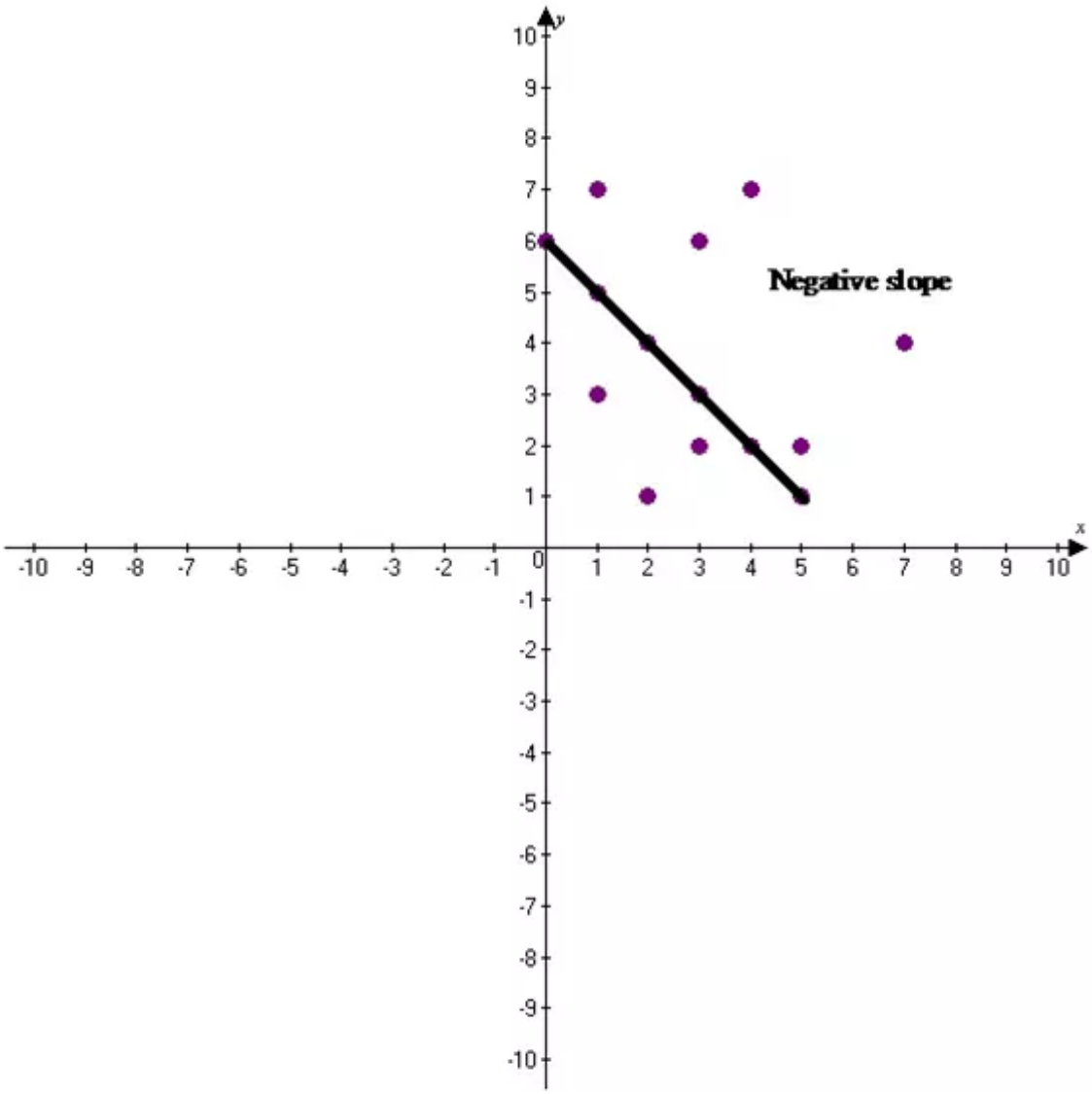


Form the graph we can say that there is a positive correlation between x and y

Because as x-increases the value of y-also increases

Hence there is a positive correlation

Next we discussed about the negative correlation

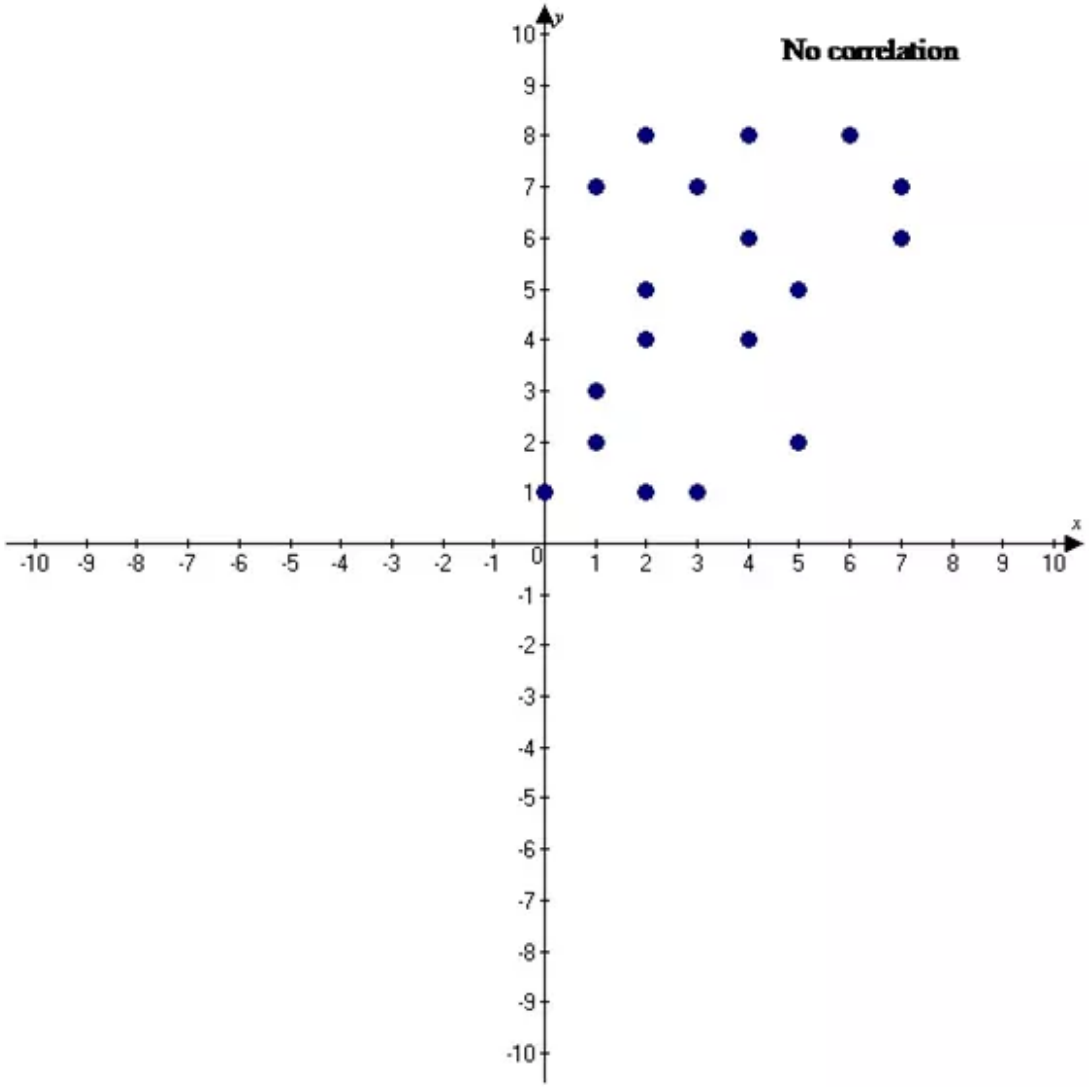


From the graph we can say that there is a negative correlation between x and y

Because as x increases the value of y decreases

Hence there is a negative correlation

Next we discussed about the no correlation



From the graph we can say that there is a no correlation between x and y

Because there is no related

Hence there is no correlation because the values are not related.

Answer 1GCI.

Consider the table shows an estimate for the number of bald eagle pairs in the United States for certain years since 1985

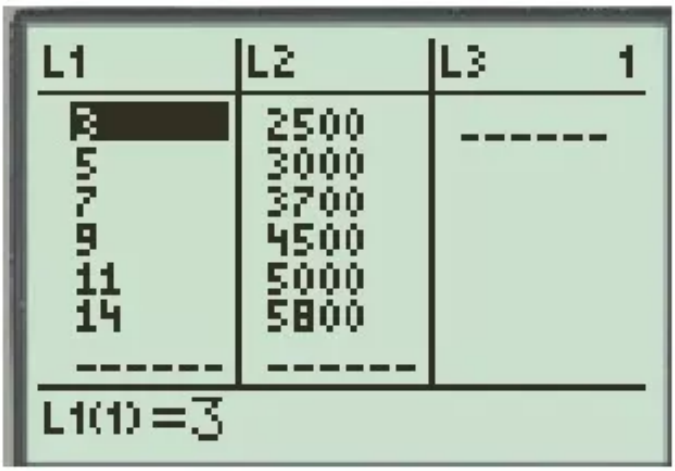
Years since 1985	3	5	7	9	11	14
Bad Eagle Pairs	2500	3000	3700	4500	5000	5800

Need find a regression and median-fit equations for the data

Enter STAT edit mode by pressing $\boxed{[\text{STAT}][1]}$

Enter the data in the L1 and L2 lists, pressing $[\text{pressing}]$ after each entry

Then press $[2^{nd}][\text{QUIT}]$ to leave the editor and the display is shown below

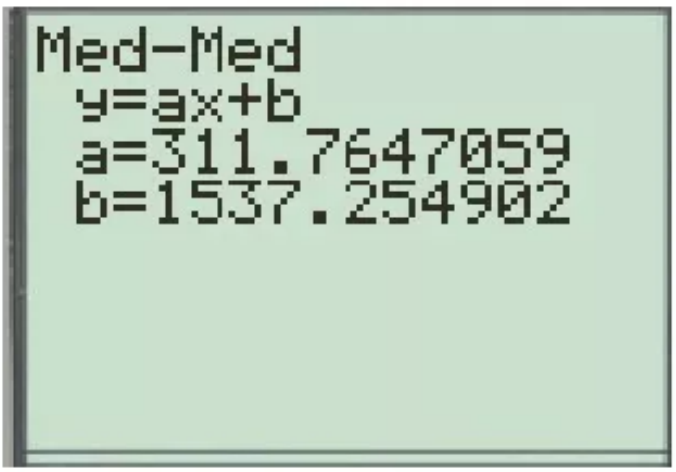


To calculate the Med-Med line, please follow the steps below

Enter the STAT mode again by pressing $[\text{STAT}]$ then select CALC

Press 3 to select Med-Med

Press enter to perform the regression calculation and the display is shown below



Thus the median-fit equation is $\boxed{y = 311.7 + 1537.25}$

To set up the stat plot, please follow the steps below

Press $\left[2^{nd}\right]\left[\text{STAT PLOT}\right]$ and choose $\{1,\ \text{plot } 1\}$

Select ON and press ENTER

Select Scatter Plots and press ENTER

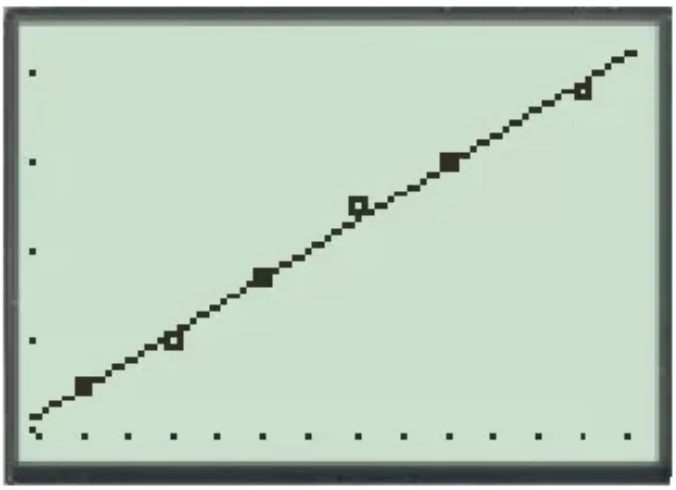
Make $\text{X list} = L1 \text{ and Y list} = L2$ and the display is shown below and the display is shown below

To graph the linear regression, please follow the steps below

Press $\text{Y} =$ the cursor should be beside $\text{Y}_1 =$ then press $\left[\text{VARS}\right]$ down to $\left[5\right]$ Statistics $\left[\text{ENTER}\right]$

Scroll to EQ press $\left[1:\ \text{RegEQ}\right]$ and press graph

Then press the button ZOOM and select ZOOMSTAT and press ENTER and the display is shown below

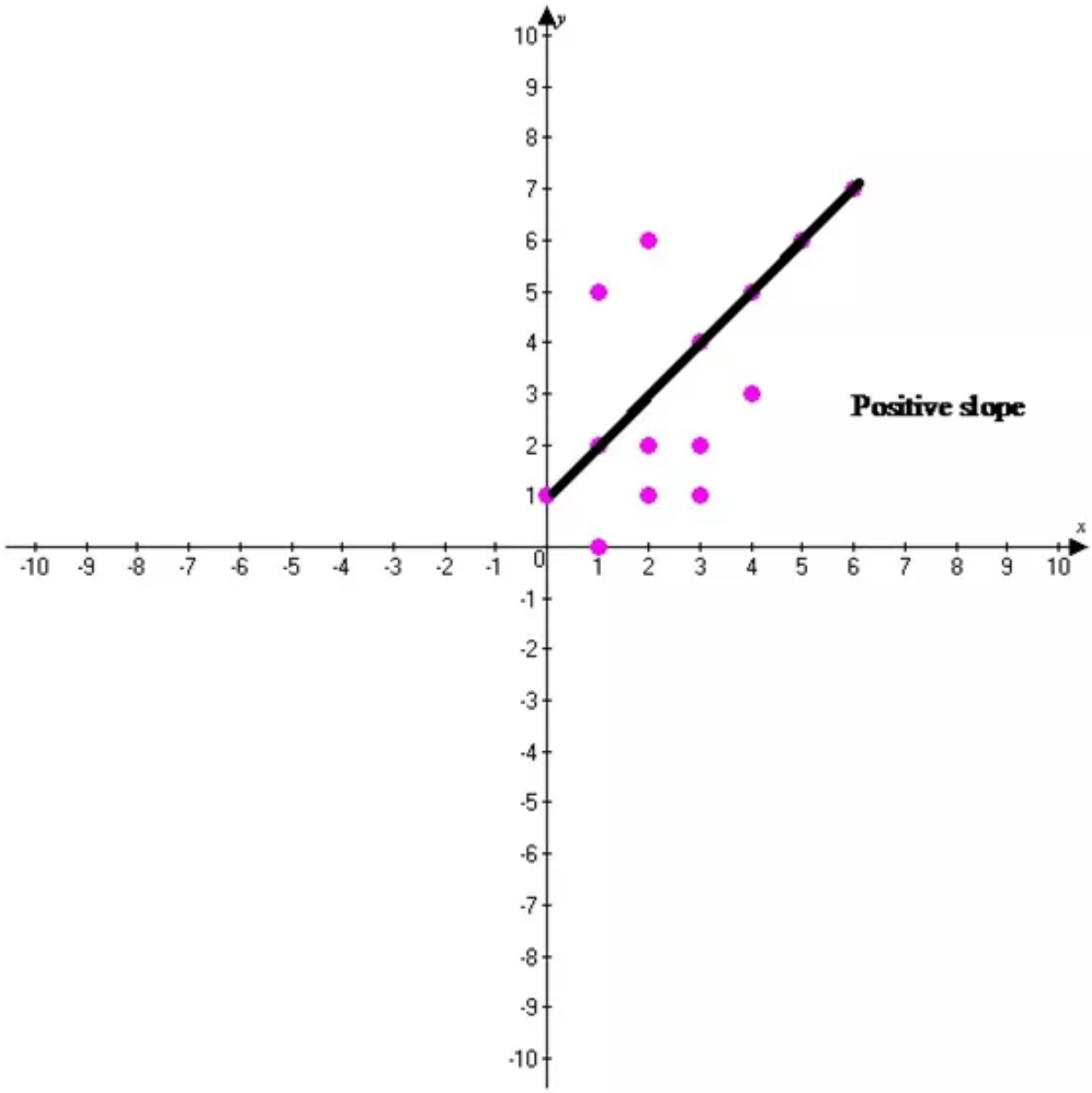


Answer 2CU.

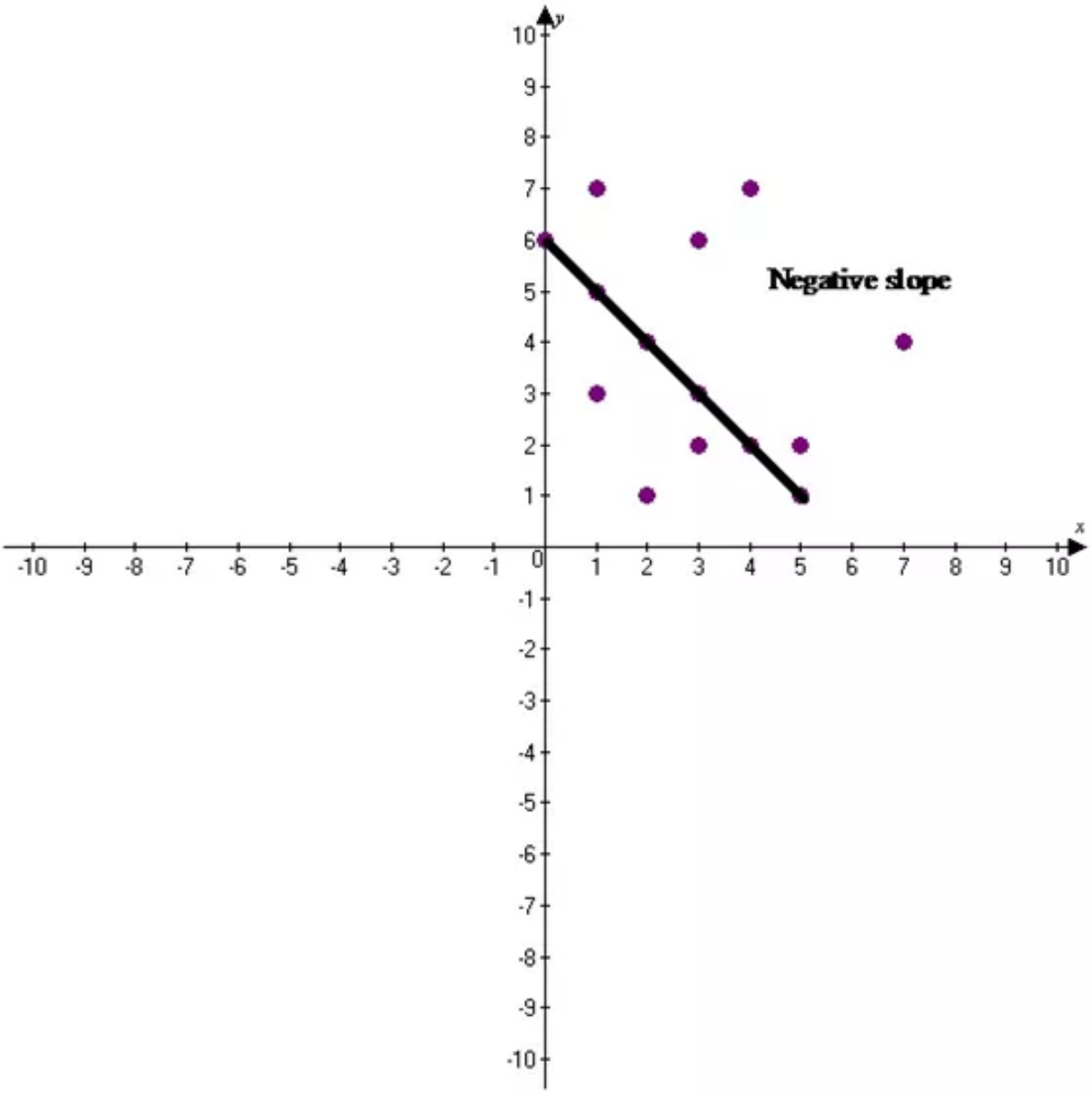
Need to sketch the scatter plots that have each type of correlation

(a) positive (b) negative (c) no correlation

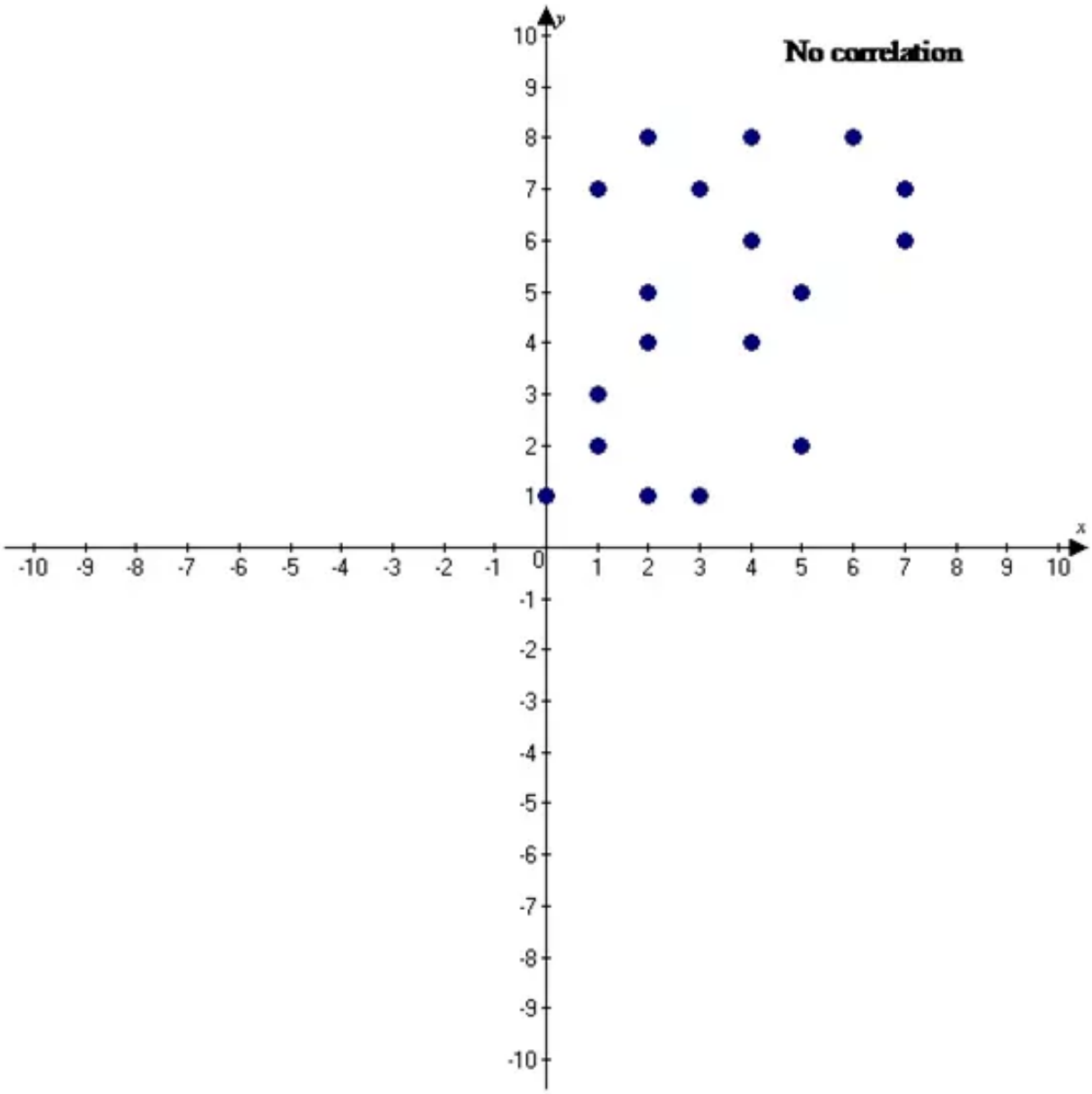
(a) positive



(b) negative



(c) no correlation



Hence the required solution we draw the three correlations

Answer 3CU.

Consider to compare and contrast the linear interpolation and linear extrapolation

Interpolation and extrapolation are the two concepts of mathematical modeling that are very important for making the predictions

Interpolation is technically defined only for input that is within the range of the data

Extrapolation is technically defined if an input is outside of the range the model is said to be the extrapolation

Example of the interpolation and extrapolation

If I had 5 cakes two days ago and 1 cake today you can interpolate that I had 3 cakes

In extrapolate that I will have zero cakes in tomorrow

These are the main difference between the linear interpolation and linear extrapolation.

Answer 3GCI.

Consider the table shows an estimate for the number of bald eagle pairs in the United States for certain years since 1985

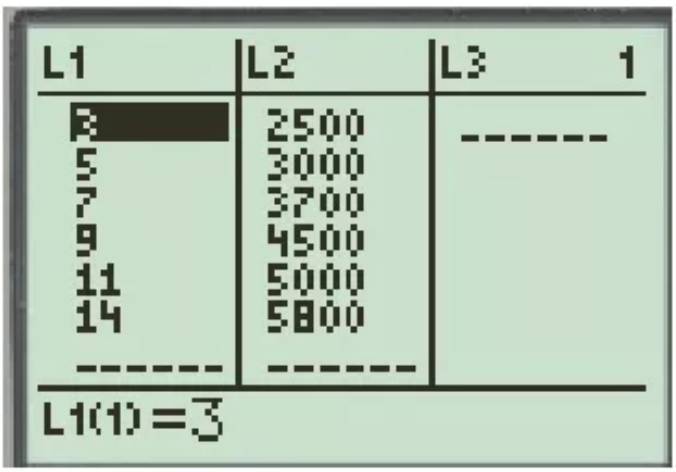
Years since 1985	3	5	7	9	11	14
Bad Eagle Pairs	2500	3000	3700	4500	5000	5800

By using the regression and median fit equations to predict the number of bad eagle pairs in 1998

Enter STAT edit mode by pressing $[\text{STAT}][1]$

Enter the data in the L1 and L2 lists, pressing $[\text{pressing}]$ after each entry

Then press $[2^{\text{nd}}][\text{QUIT}]$ to leave the editor and the display is shown below

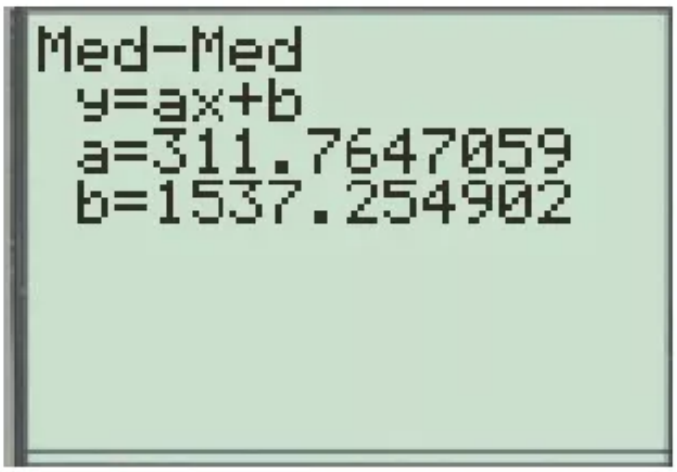


To calculate the Med-Med line, please follow the steps below

Enter the STAT mode again by pressing [STAT] then select CALC

Press 3 to select Med-Med

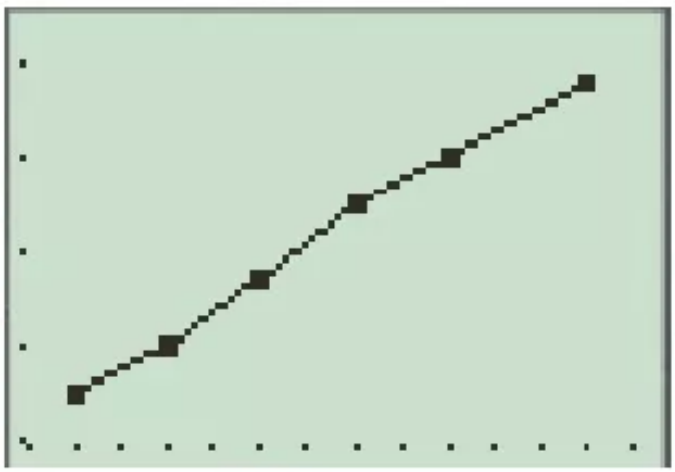
Press enter to perform the regression calculation and the display is shown below



Copy the equation to the Y = list and graph

Keystrokes

[Y =] [VARS] 5 [▷] [▷] 1 [GRAPH]



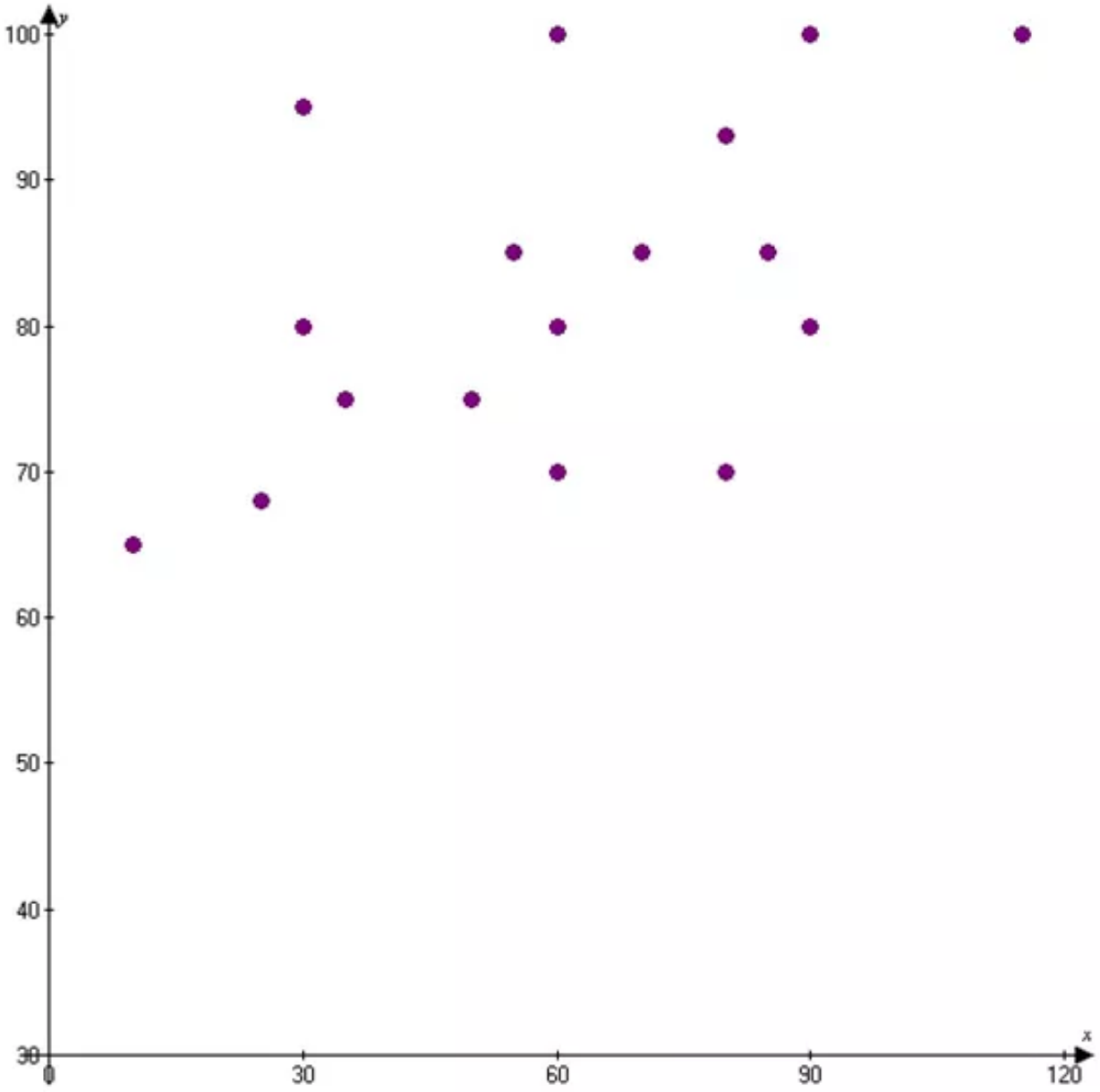
To calculate the number of bad eagle pairs in 1998 press [2nd] [CALC] 1 1998 [ENTER]

So the number of bad eagle pairs in 1998 were about [13].

Answer 4CU.

Draw a graph and describe it this graph shows a positive correlation, negative correlation, or no correlation

Drawn a graph below



From the we can say that there is a positive correlation between x and y

Because x increases and the value of y is also increases

Hence the graph is positive correlation.

Answer 4GCI.

Consider the table shows the number of votes cast for the Democratic presidential candidate in selected North Carolina countries in the 1996 and 2000 elections

1996	2000
14,447	16,284
19,458	19,281
28,674	30,921
31,658	38,545
32,739	38,626
46,543	52,457
49,186	53,907
69,208	80,787
103,249	126,911
103,574	123,466

Need find a regression and median-fit equations for the data

Enter STAT edit mode by pressing $\boxed{[\text{STAT}][1]}$

Enter the data in the L1 and L2 lists, pressing $[\text{pressing}]$ after each entry

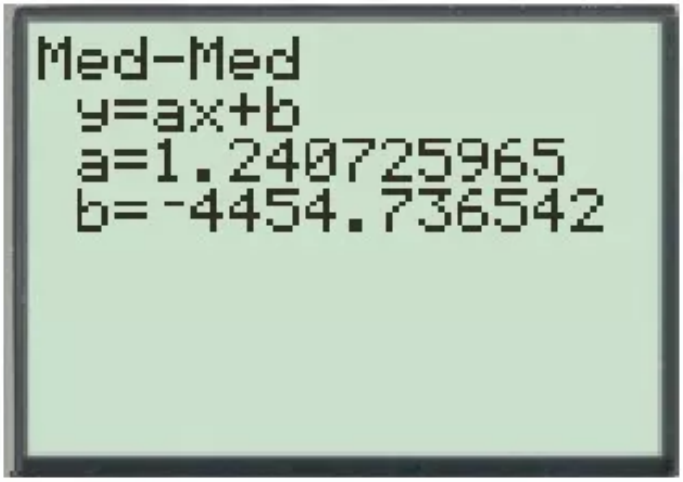
Then press $[2^{\text{nd}}][\text{QUIT}]$ to leave the editor and the display is shown below

To calculate the Med-Med line, please follow the steps below

Enter the STAT mode again by pressing $[\text{STAT}]$ then select CALC

Press 3 to select Med-Med

Press enter to perform the regression calculation and the display is shown below



Thus the median-fit equation is $\boxed{y = 1.240 - 4454.736}$

To set up the stat plot, please follow the steps below

Press $[2^{\text{nd}}][\text{STAT PLOT}]$ and choose $\{1,\ \text{plot } 1\}$

Select ON and press ENTER

Select Scatter Plots and press ENTER

Make $\text{X list} = L1 \text{ and Y list} = L2$ and the display is shown below and the display is shown below

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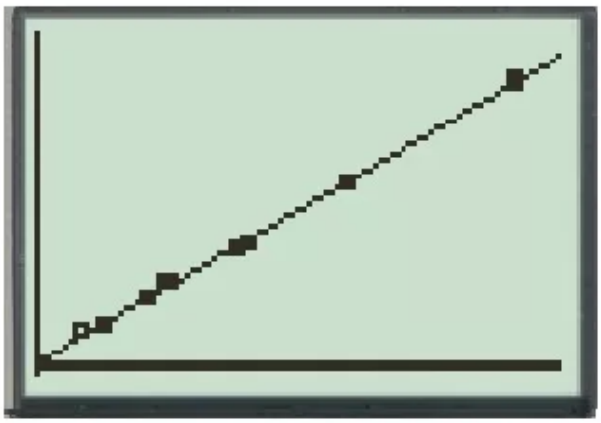
Press $Y=$ the cursor should be beside $Y_1=$ then press $[\text{VARS}]$ down to $[5]$ Statistics $[\text{ENTER}]$

Scroll to EQ press $[1:\ \text{RegEQ}]$ and press graph

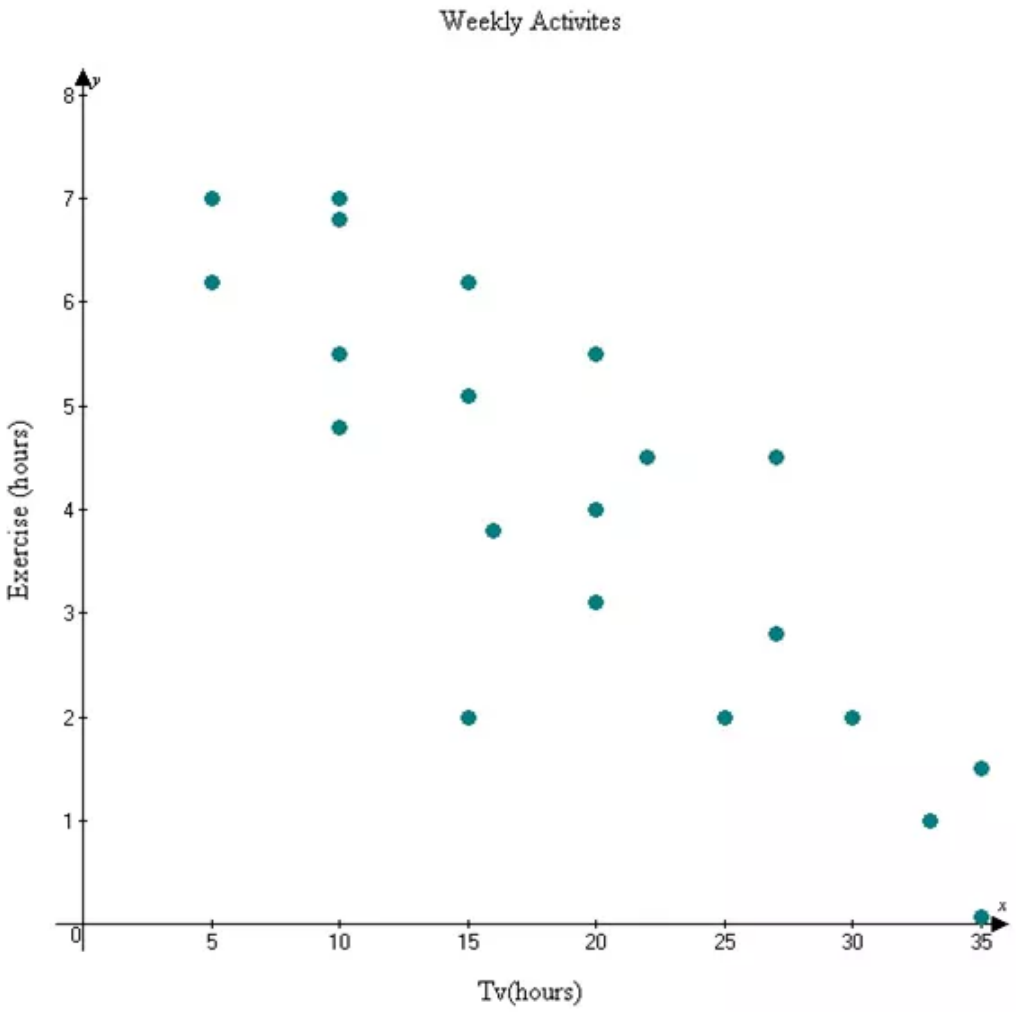
Then press the button ZOOM and select ZOOMSTAT and press ENTER and the display is shown below



Answer 5CU.

Draw a graph and describe it this graph shows a positive correlation, negative correlation, or no correlation

Drawn a graph below



From the we can say that there is a negative correlation between x and y

Because x increases and the value of y is decreases

Hence the graph is negative correlation.

Answer 6CU.

Consider to draw a scatter plot and determine what relationship exists, if any, in the data

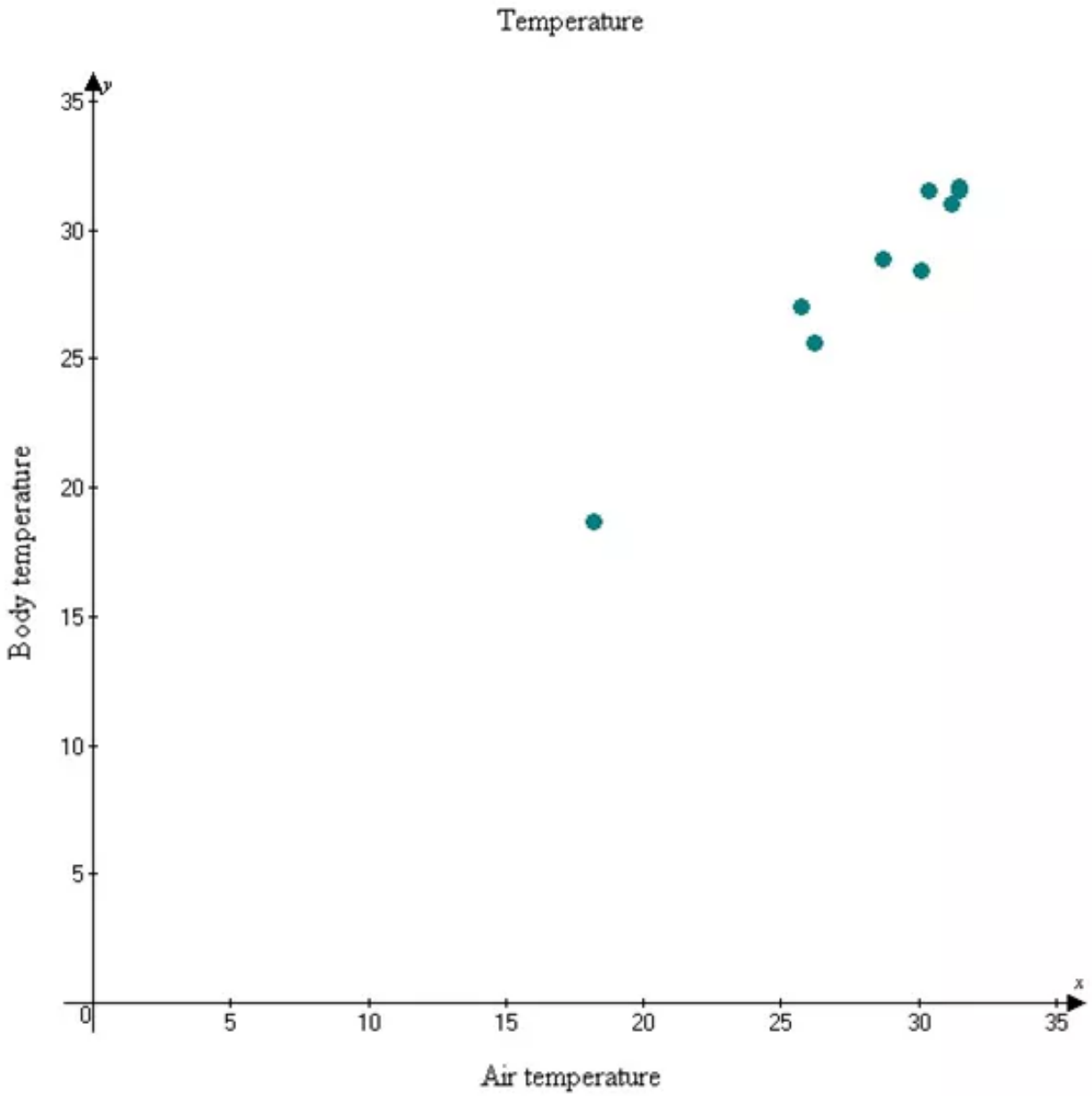
Air	25.7	30.4	28.7	31.2	31.5	26.2	30.1	31.5	18.2
Body	27.0	31.5	28.9	31.0	31.5	25.6	28.4	31.7	18.7

Let the independent variable x be the air temperature

Let the dependent variable y be the average body temperature

As the air temperature increases and the body temperature is increases

Then it is a positive correlation between the two variables



Hence the required solution of scatter graph is drawn.

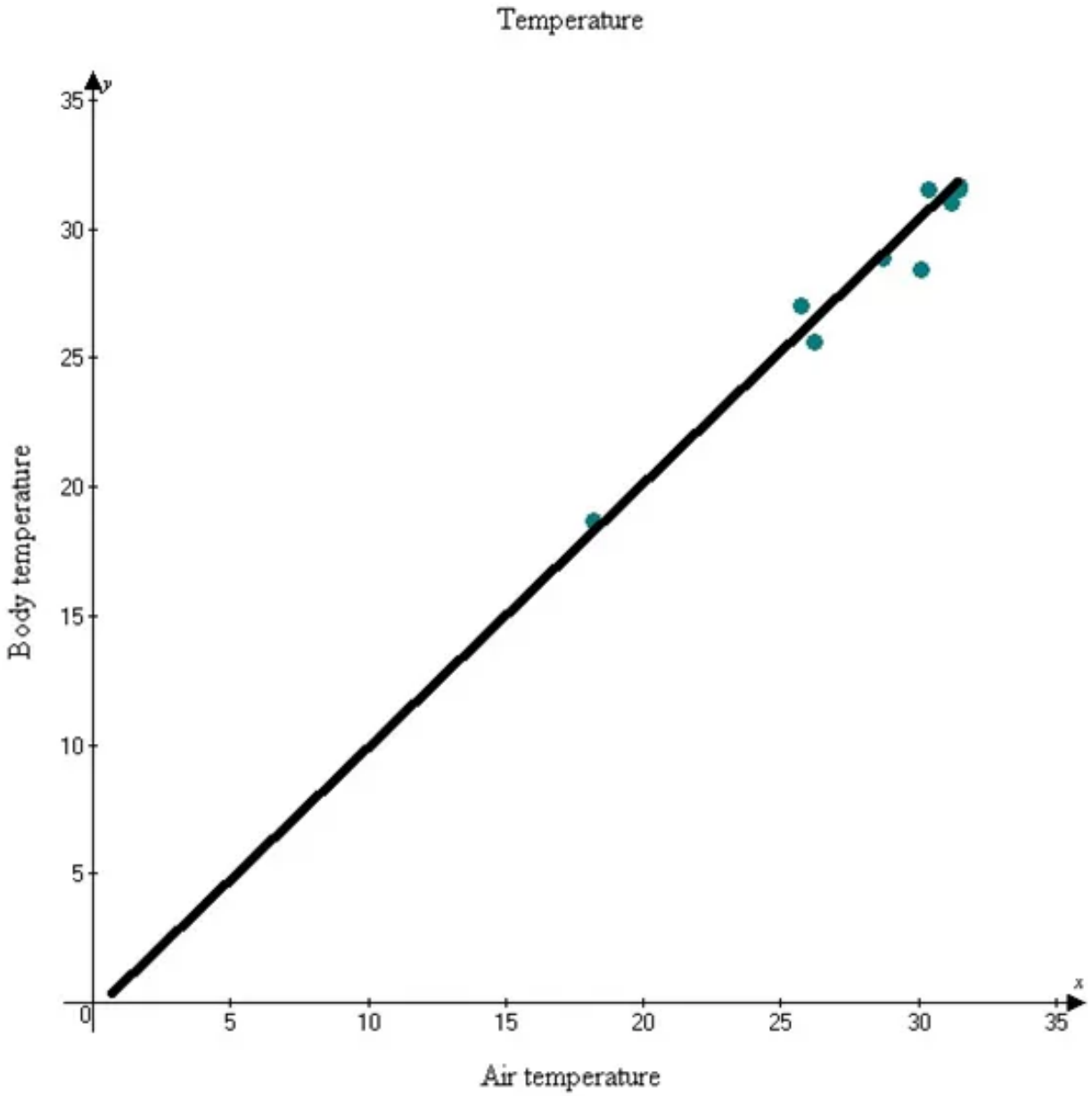
Answer 7CU.

Consider to draw line of fit for the scatter plot

Air	25.7	30.4	28.7	31.2	31.5	26.2	30.1	31.5	18.2
Body	27.0	31.5	28.9	31.0	31.5	25.6	28.4	31.7	18.7

The line will not pass through given all data points

Then draw the line that passes close to the points



Hence the required solution the scatter plot of data fit line is drawn.

Answer 8CU.

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

Air	25.7	30.4	28.7	31.2	31.5	26.2	30.1	31.5	18.2
Body	27.0	31.5	28.9	31.0	31.5	25.6	28.4	31.7	18.7

Consider the points in the air temperature and body temperature

$(x_1, y_1) = (25.7, 27.0)$ And $(x_2, y_2) = (30.4, 31.5)$

And then find the slope

Slope formula

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

Substitute the values in the slope formula

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

$$m = \frac{31.5 - 27.0}{30.4 - 25.7}$$

$$m = \frac{4.5}{4.7}$$

$$m = 0.95$$

Now slope $m = 0.95$

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

Formulae of point slope form

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

Substitute the values $x_1 = 25.7, y_1 = 27.0, m = 0.95$ in the point slope formula

$$y - 27.0 = 0.95(x - 25.7) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 27.0 = 0.95x - 24.415$$

$$y - 27.0 + 27.0 = 0.95x - 24.415 + 27.0 \qquad \text{Adding 27.0 on both sides}$$

$$y = 0.95x + 2.585$$

Hence the required solution of slope-intercept form of an equation for fit of line

$$\boxed{y = 0.95x + 2.585}$$

Answer 9CU.

Consider to predict the body temperature of an insect if the air temperature is $40.2°C$.

Air	25.7	30.4	28.7	31.2	31.5	26.2	30.1	31.5	18.2
Body	27.0	31.5	28.9	31.0	31.5	25.6	28.4	31.7	18.7

Consider the points in the air temperature and body temperature

$(x_1, y_1) = (25.7, 27.0)$ And $(x_2, y_2) = (30.4, 31.5)$

And then find the slope

Slope formula

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

Substitute the values in the slope formula

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

$$m = \frac{31.5 - 27.0}{30.4 - 25.7}$$

$$m = \frac{4.5}{4.7}$$

$$m = 0.95$$

Now slope $m = 0.95$

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

Formulae of point slope form

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

Substitute the values $x_1 = 25.7, y_1 = 27.0, m = 0.95$ in the point slope formula

$$y - 27.0 = 0.95(x - 25.7) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 27.0 = 0.95x - 24.415$$

$$y - 27.0 + 27.0 = 0.95x - 24.415 + 27.0 \qquad \text{Adding 27.0 on both sides}$$

$$y = 0.95x + 2.585$$

Hence the required solution of slope-intercept form of an equation for fit of line

$$\boxed{y = 0.95x + 2.585}$$

Use the equation of slope intercept form equation

Slope intercept equation $y = 0.95x + 2.585$ replace $x = 40.2$ in the slope intercept equation

Now solve the equation

$y = 0.95x + 2.585$ Original equation

$y = 0.95(40.2) + 2.585$ Replace $x = 40.2$

$y = 38.19 + 2.585$ Simplify

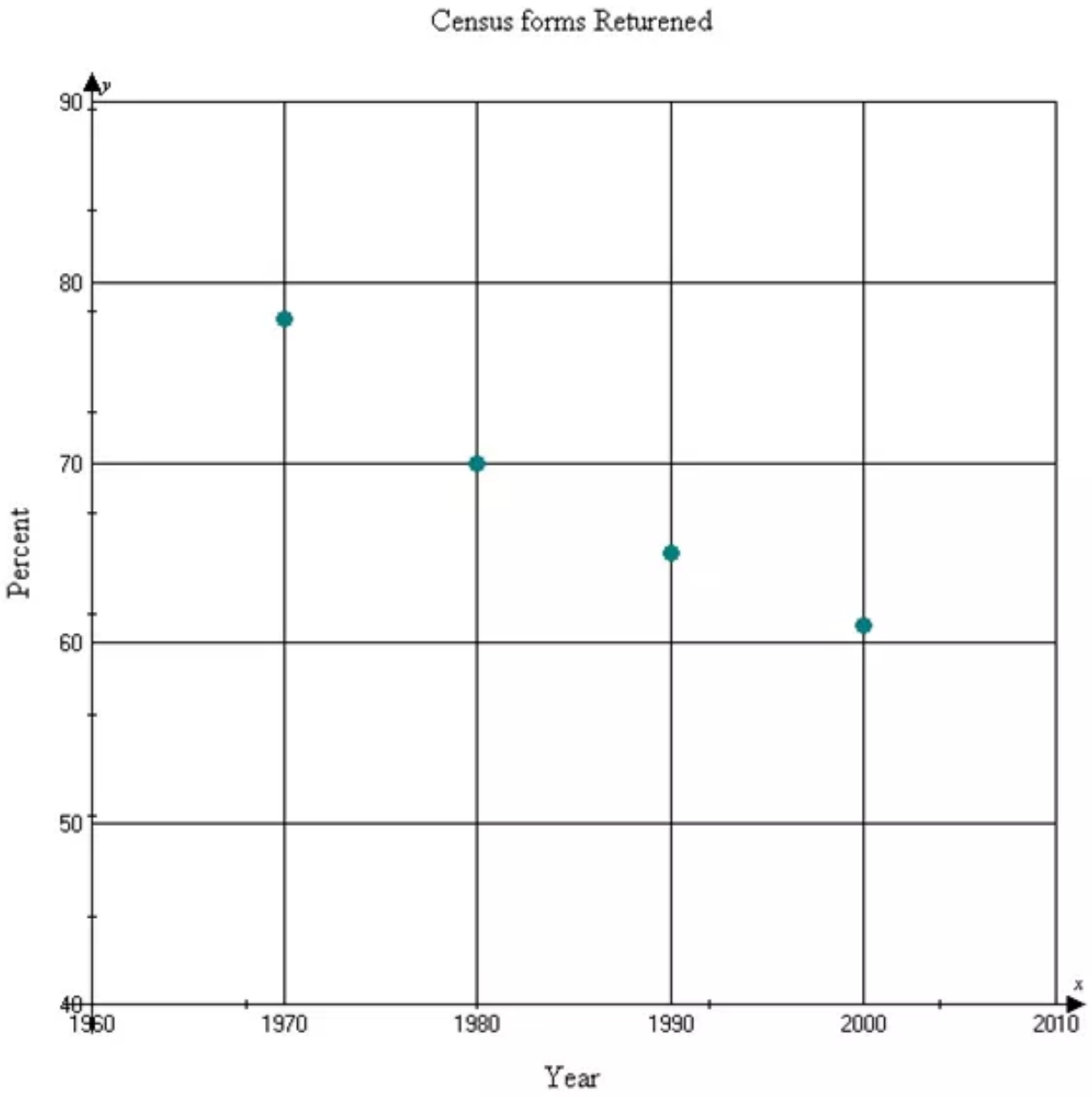
$y = 40.775$

Hence the required solution predict of the body temperature is $\boxed{40.1°C}$.

Answer 10PA.

Consider the graph whether it is a positive correlation, negative correlation, no correlation

Draw the graph



The graph is shown as negative correlation

Because the year of census forms returned is increase

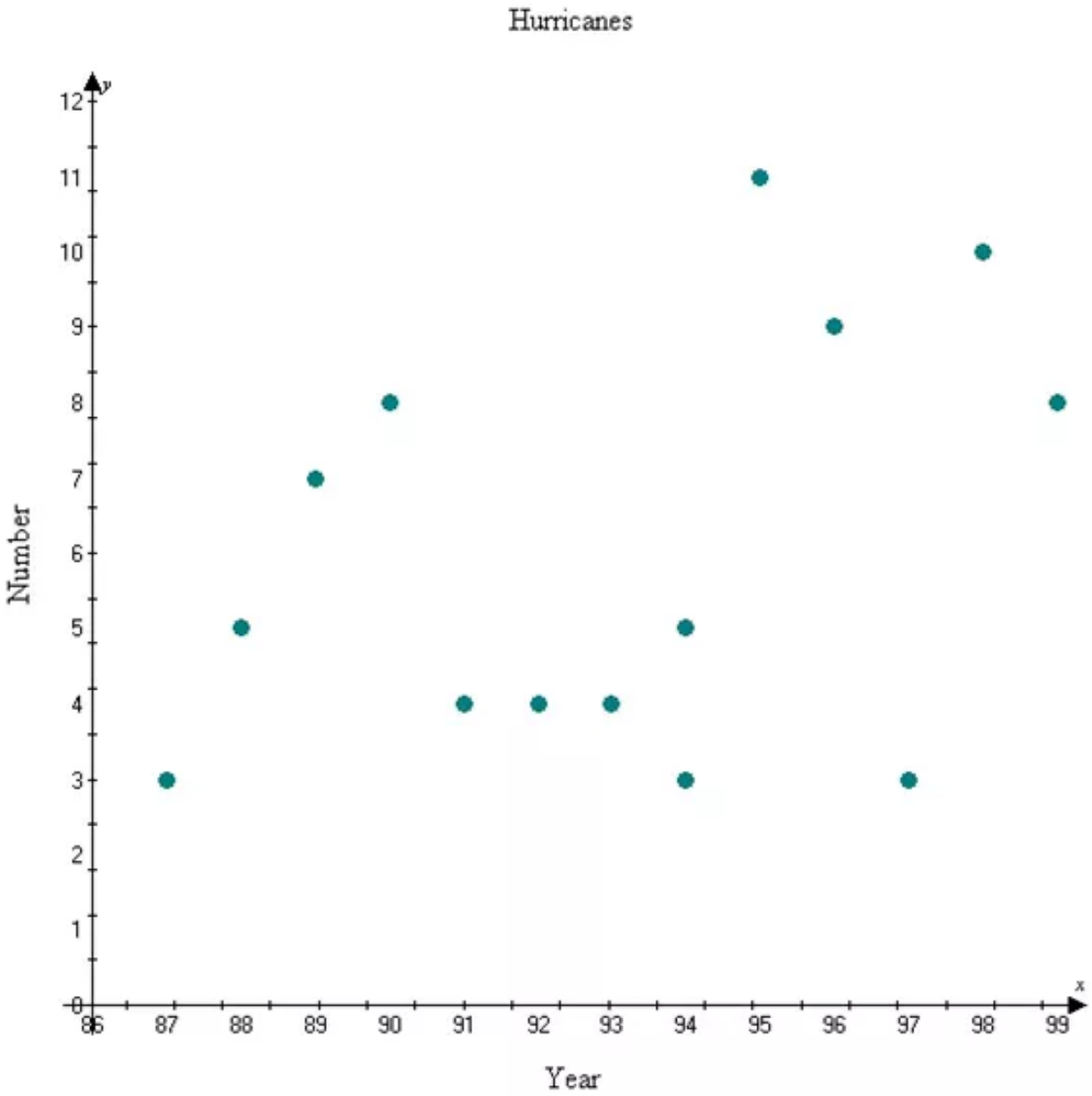
And the percent of the census forms returned is decreased

Hence the required solution of the graph is negative correlation.

Answer 11PA.

Consider the graph whether it is a positive correlation, negative correlation, no correlation

Draw the graph



The graph is shown as no correlation

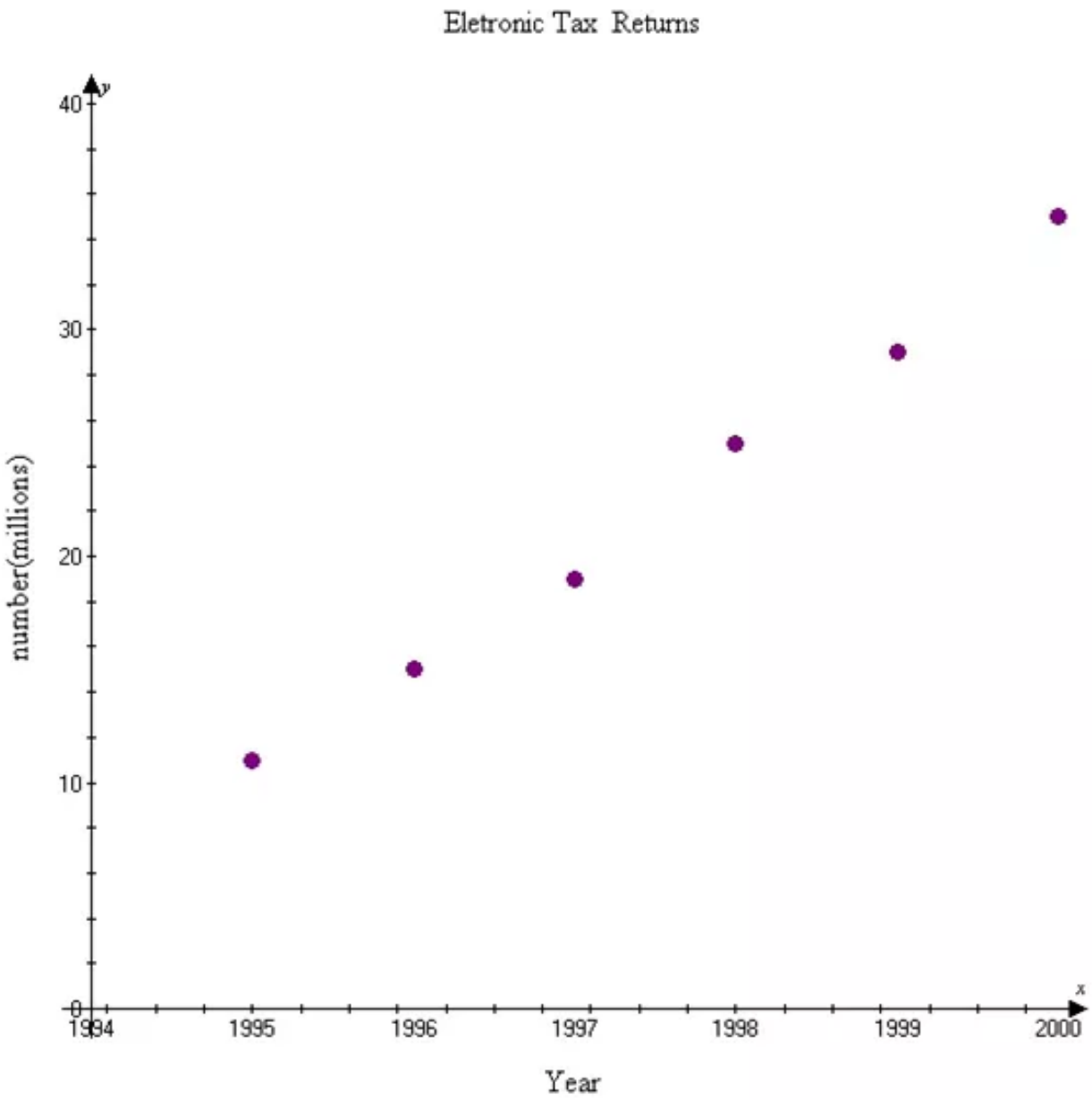
Because the no of hurricanes and the year of hurricanes is not related

Hence the required solution of the graph is no correlation.

Answer 12PA.

Consider the graph whether it is a positive correlation, negative correlation, no correlation

Draw the graph



The graph is shown as positive correlation

Because the year of electronic tax returns increase

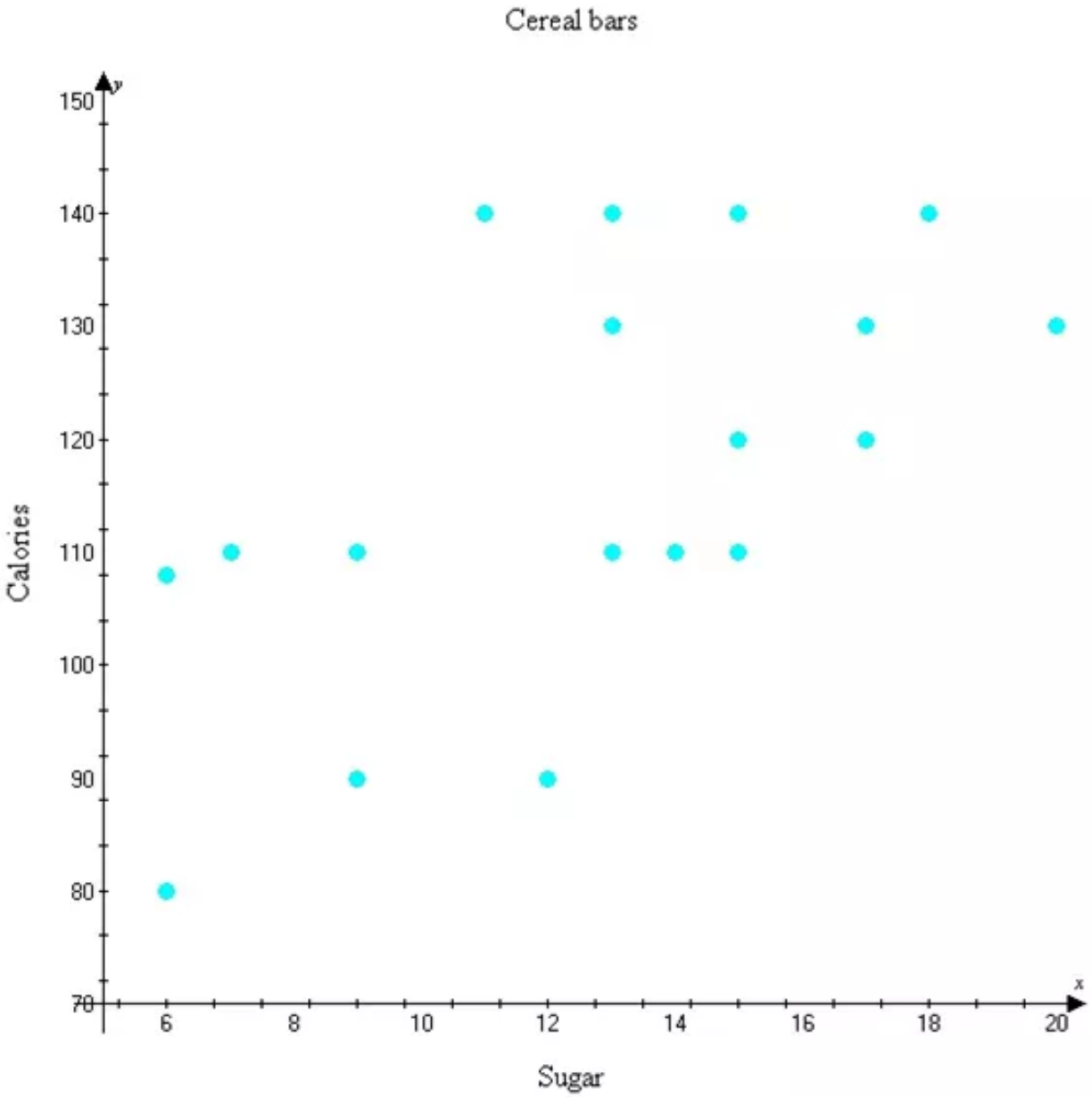
And the number of electronic tax returns is also increase

Hence the required solution of the graph is positive correlation.

Answer 13PA.

Consider the graph whether it is a positive correlation, negative correlation, no correlation

Draw the graph



The graph is shown as positive correlation

Because the sugar cereal bars increase

And the calories of cereal bars is also increase

Hence the required solution of the graph is positive correlation.

Answer 14PA.

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

Consider the points $(x_1, y_1) = (1997, 8.1)$ and $(x_2, y_2) = (1999, 12.4)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

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

$$m = \frac{12.4 - 8.1}{1999 - 1997}$$

$$m = \frac{4.3}{2}$$

$$m = 2.15$$

Now slope $m = 2.15$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (1997, 8.1)$ and $m = 2.15$ in the point slope formula

Solve the equation

$$y - 8.1 = 2.15(x - 1997) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 8.1 = 2.15x - 4293.55$$

$$y - 8.1 + 8.1 = 2.15x - 4293.55 + 8.1 \qquad \text{Adding 8.1 on both sides}$$

$$y = 2.15x - 4285.45$$

Hence the required solution slope-intercept form of the equation for the fit of line is

$\boxed{y = 2.15x - 4285.45}$.

Answer 15PA.

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

Consider the points $(x_1, y_1) = (1997, 8.1)$ and $(x_2, y_2) = (1999, 12.4)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

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

$$m = \frac{12.4 - 8.1}{1999 - 1997}$$

$$m = \frac{4.3}{2}$$

$$m = 2.15$$

Now slope $m = 2.15$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (1997, 8.1)$ and $m = 2.15$ in the point slope formula

Solve the equation

$$y - 8.1 = 2.15(x - 1997) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 8.1 = 2.15x - 4293.55$$

$$y - 8.1 + 8.1 = 2.15x - 4293.55 + 8.1 \qquad \text{Adding 8.1 on both sides}$$

$$y = 2.15x - 4285.45$$

Hence the required solution slope-intercept form of the equation for the fit of line is

$\boxed{y = 2.15x - 4285.45}$.

Consider the number of bushels of apples in storage in 2002

Use the equation $y = 2.15x - 4285.45$ here x is no of years and y is the no bushels apples

Let us take $x = 2002$

Replace the $x = 2002$ in the slope-intercept form equation is $y = 2.15x - 4285.45$

Solve the equation

$$y = 2.15x - 4285.45 \qquad \text{Original equation}$$

$$y = 2.15(2002) - 4285.45 \qquad \text{Replace } x = 2002$$

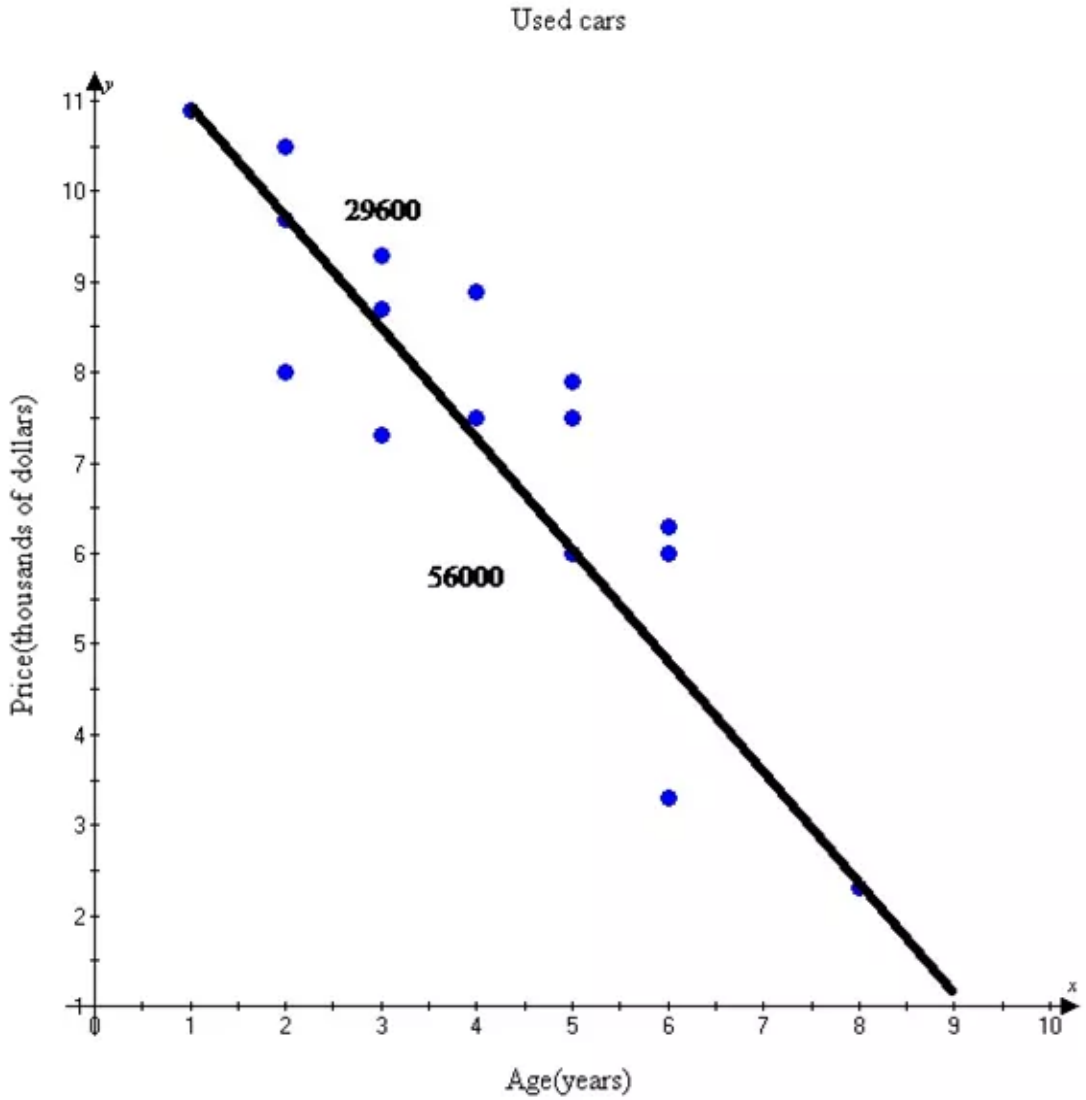
$$y = 4304.3 - 4285.45 \qquad \text{simplify}$$

$$y = 18.85$$

Hence the required solution number of bushels of apples in storage in 2002 is $\boxed{y = 18.85}$

Answer 16PA.

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



Consider the points $(x_1, y_1) = (2, 9600)$ and $(x_2, y_2) = (5, 6000)$

Find the slope of the points

Formulae of slope

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

Answer 17PA.

Consider the price of a car that is 7 years old.

Substitute the values in the slope formula

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

$$m = \frac{6000 - 9600}{5 - 2}$$

$$m = \frac{-3600}{3}$$

$$m = -1200$$

Now slope $m = -1200$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (2, 9600)$ and $m = -1200$ in the point slope formula

Solve the equation

$$y - 9600 = -1200(x - 2) \qquad \text{By distributive property } a(b+c) = ab + ac$$
$$y - 9600 = -1200x + 2400$$
$$y - 9600 + 9600 = -1200x + 2400 + 9600 \qquad \text{Adding 9600 on both sides}$$
$$y = -1200x + 12000$$

Hence the required solution slope-intercept form of the equation for the fit of line is $\boxed{y = -1200x + 12000}$.

Use the equation $y = -1200x + 12000$ here x is no of years and y is the price of the cars

Let us take $x = 7$

Replace the $x = 7$ in the slope-intercept form equation is $y = -1200x + 12000$

Solve the equation

$$y = -1200x + 12000 \qquad \text{Original equation}$$
$$y = -1200(7) + 12000 \qquad \text{Replace } x = 7$$
$$y = -8400 + 12000 \qquad \text{simplify}$$
$$y = 3600$$

Hence the required solution of the car that is 7 years old is $\boxed{y = 3600}$.

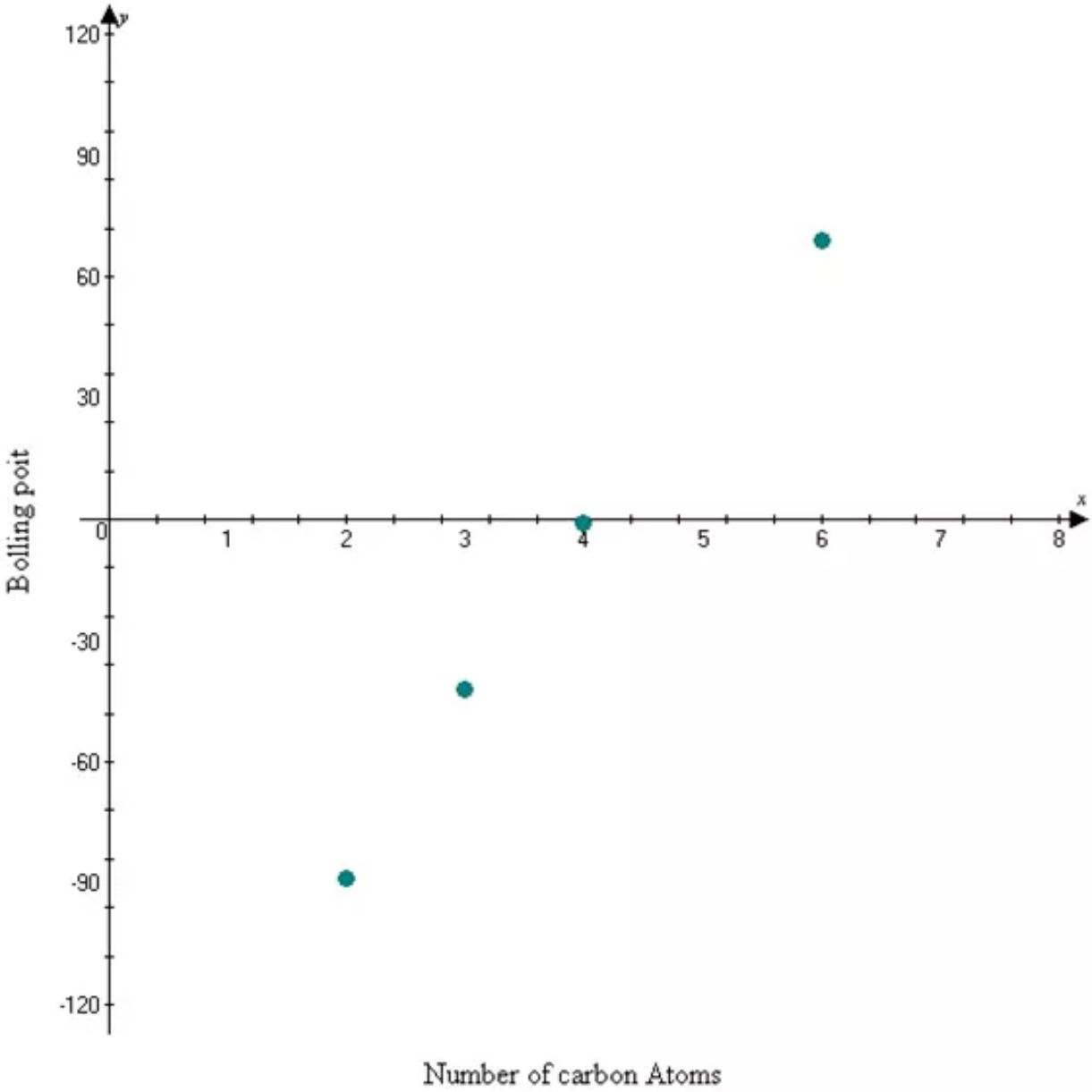
Answer 18PA.

Consider to draw the scatter plot number of carbon atoms to the boiling atoms

Name	Formula	Number of carbon atoms	Boiling point $(^\circ C)$
Ethane	C_2H_6	2	–89
Propane	C_3H_8	3	–42
Butane	C_4H_{10}	4	–1
Hexane	C_6H_{12}	6	69
Octane	C_8H_{18}	8	126

Let x be the independent variable of number of carbon atoms

Let y be the dependent variable of boiling point



The number of carbon atoms increases and the number of boiling point increases

Hence the required solution of the scatter plot is positive correlation between the variables

Answer 19PA.

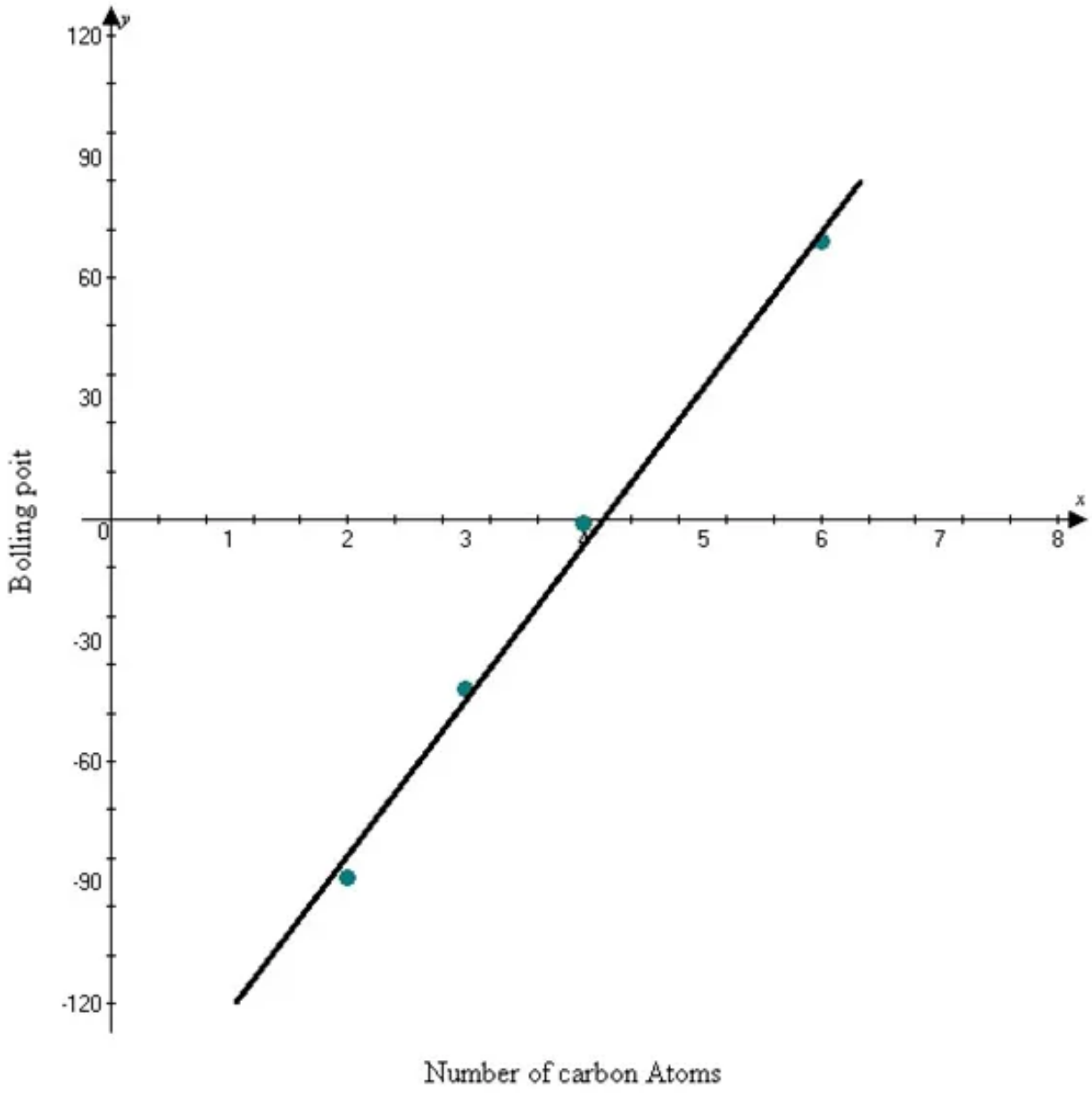
Consider to draw the line fit for the data

Name	Formula	Number of carbon atoms	Boiling point $(°C)$
Ethane	C_2H_6	2	–89
Propane	C_3H_8	3	–42
Butane	C_4H_{10}	4	–1

Hexane	C_6H_{12}	6	69
Octane	C_8H_{18}	8	126

The line will not pass through given all data points

Then draw the line that passes close to the points



Hence the required solution fit for the line is drawn.

Answer 20PA.

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

Name	Formula	Number of carbon	Boiling point

Name	Formula	of carbon atoms	point $(^\circ C)$
Ethane	C_2H_6	2	–89
Propane	C_3H_8	3	–42
Butane	C_4H_{10}	4	–1
Hexane	C_6H_{12}	6	69
Octane	C_8H_{18}	8	126

Consider the points $(x_1, y_1) = (2, -89)$ and $(x_2, y_2) = (3, -42)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

$$m = \frac{-42 - (-89)}{3 - 2}$$

$$m = \frac{-42 + 89}{1}$$

$$m = \frac{47}{1}$$

$$m = 47$$

Now slope $m = 47$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (2, -89)$ and $m = 47$ in the point slope formula

Solve the equation

$$y - (-89) = 47(x - 2)$$ By distributive property $a(b + c) = ab + ac$

$$y + 89 = 47x - 94$$

$$y + 89 - 89 = 47x - 94 - 89$$ Adding -89 on both sides

$$y = 47x - 183$$

Hence the required solution slope-intercept form of the equation for the fit of line is

$\boxed{y = 47x - 183}$.

Answer 21PA.

Consider the hydrocarbons table

Name	Formula	Number of carbon atoms	Boiling point $(°C)$
Ethane	C_2H_6	2	−89
Propane	C_3H_8	3	−42
Butane	C_4H_{10}	4	−1
Hexane	C_6H_{12}	6	69
Octane	C_8H_{18}	8	126

Consider to predict the boiling point for methane (CH_4) they have 1 carbon atom

Consider the points $(x_1, y_1) = (2, -89)$ and $(x_2, y_2) = (3, -42)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

$$m = \frac{-42 - (-89)}{3 - 2}$$

$$m = \frac{-42 + 89}{1}$$

$$m = \frac{47}{1}$$

$$m = 47$$

Now slope $m = 47$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (2, -89)$ and $m = 47$ in the point slope formula

Solve the equation

$$\begin{aligned} y - (-89) &= 47(x - 2) && \text{By distributive property } a(b+c) = ab + ac \\ y + 89 &= 47x - 94 \\ y + 89 - 89 &= 47x - 94 - 89 && \text{Adding } -89 \text{ on both sides} \\ y &= 47x - 183 \end{aligned}$$

Hence the required solution slope-intercept form of the equation for the fit of line is $\boxed{y = 47x - 183}$.

Let us consider $x = 1$

Use the equation $y = 47x - 183$ here x is the number of carbon atoms and y is the boiling point

Substitute the value $x = 1$ in the equation $y = 47x - 183$ and solve the equation

$$\begin{aligned} y &= 47x - 183 && \text{Original equation} \\ y &= 47(1) - 183 && \text{Replace } x = 1 \\ y &= 47 - 183 && \text{Simplify} \\ y &= -136 \end{aligned}$$

Hence the required solution of boiling point of methane is $\boxed{y = -136}$.

Let us consider $x = 5$

Use the equation $y = 47x - 183$ here x is the number of carbon atoms and y is the boiling point

Substitute the value $x = 5$ in the equation $y = 47x - 183$ and solve the equation

$$\begin{aligned} y &= 47x - 183 && \text{Original equation} \\ y &= 47(5) - 183 && \text{Replace } x = 5 \\ y &= 235 - 183 && \text{Simplify} \\ y &= 52 \end{aligned}$$

Hence the required solution of boiling point of pentane is $\boxed{y = 52}$.

Answer 23PA.

Consider the hydrocarbons table

Name	Formula	Number of carbon atoms	Boiling point $(°C)$
Ethane	C_2H_6	2	−89
Propane	C_3H_8	3	−42
Butane	C_4H_{10}	4	−1
Hexane	C_6H_{12}	6	69
Octane	C_8H_{18}	8	126

Consider the boiling point for heptanes is $98.4°C$

Consider the points $(x_1, y_1) = (2, -89)$ and $(x_2, y_2) = (3, -42)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

$$m = \frac{-42 - (-89)}{3 - 2}$$

$$m = \frac{-42 + 89}{1}$$

$$m = \frac{47}{1}$$

$$m = 47$$

Now slope $m = 47$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (2, -89)$ and $m = 47$ in the point slope formula

Solve the equation

$$y - (-89) = 47(x - 2)$$ By distributive property $a(b + c) = ab + ac$

$$y + 89 = 47x - 94$$

$$y + 89 - 89 = 47x - 94 - 89$$ Adding -89 on both sides

$$y = 47x - 183$$

Hence the required solution slope-intercept form of the equation for the fit of line is

$\boxed{y = 47x - 183}$.

Consider the line of fit for the data equation to predict the number of carbon atoms in heptanes

Let us take $y = 98.4°C$

Use the equation $y = 47x - 183$ here x is the number of carbon atoms and y is the boiling point

Substitute the value $y = 98.4$ in the equation $y = 47x - 183$ and solve the equation

$$y = 47x - 183 \qquad \text{Original equation}$$
$$98.4 = 47x - 183$$
$$98.4 + 183 = 47x - 183 + 183 \qquad \text{Adding 183 on both sides}$$
$$281.4 = 47x$$

By simplification

$$281.4 = 47x$$
$$\frac{281.4}{47} = \frac{47}{47}x \qquad \text{Divided 47 on both sides}$$
$$x = 6$$

Hence the required solution of boiling point of Heptanes is $\boxed{x = 6}$.

Answer 24PA.

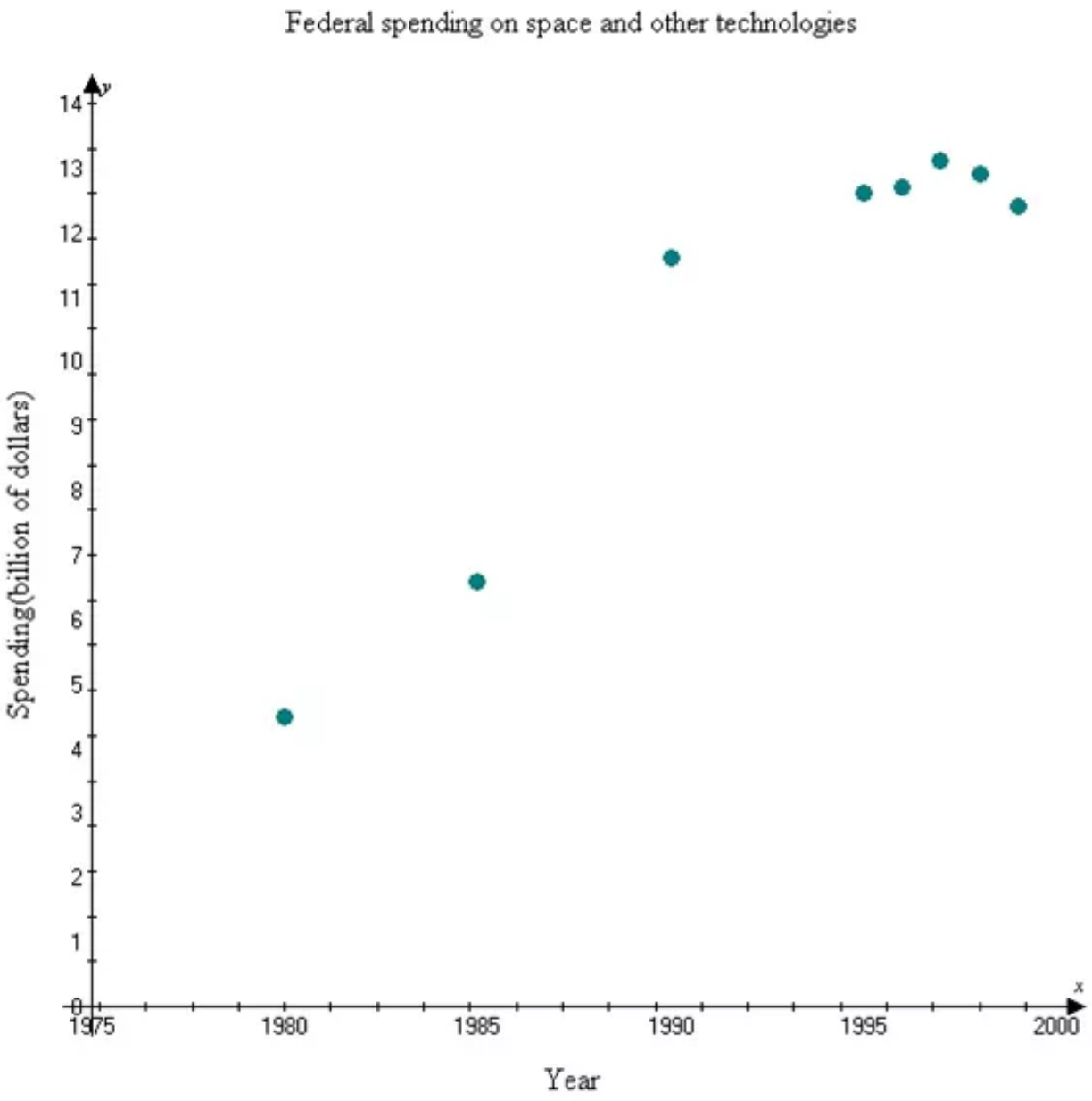
Consider to draw the scatter plot and what relationship if any exists in the data

Year	1980	1985	1990	1995	1996	1997	1998	1999
Spending (billions of dollars)	4.5	6.6	11.6	12.6	12.7	13.1	12.9	12.4

Let us consider the x is the independent variable and it be the number of years in the federal spending on space and other technologies

Let us consider the y is the dependent variable and it be the number of spending billions of dollars to the space and other technologies

And then draw the scatter plot



Hence the required solution of the scatter plot is drawn.

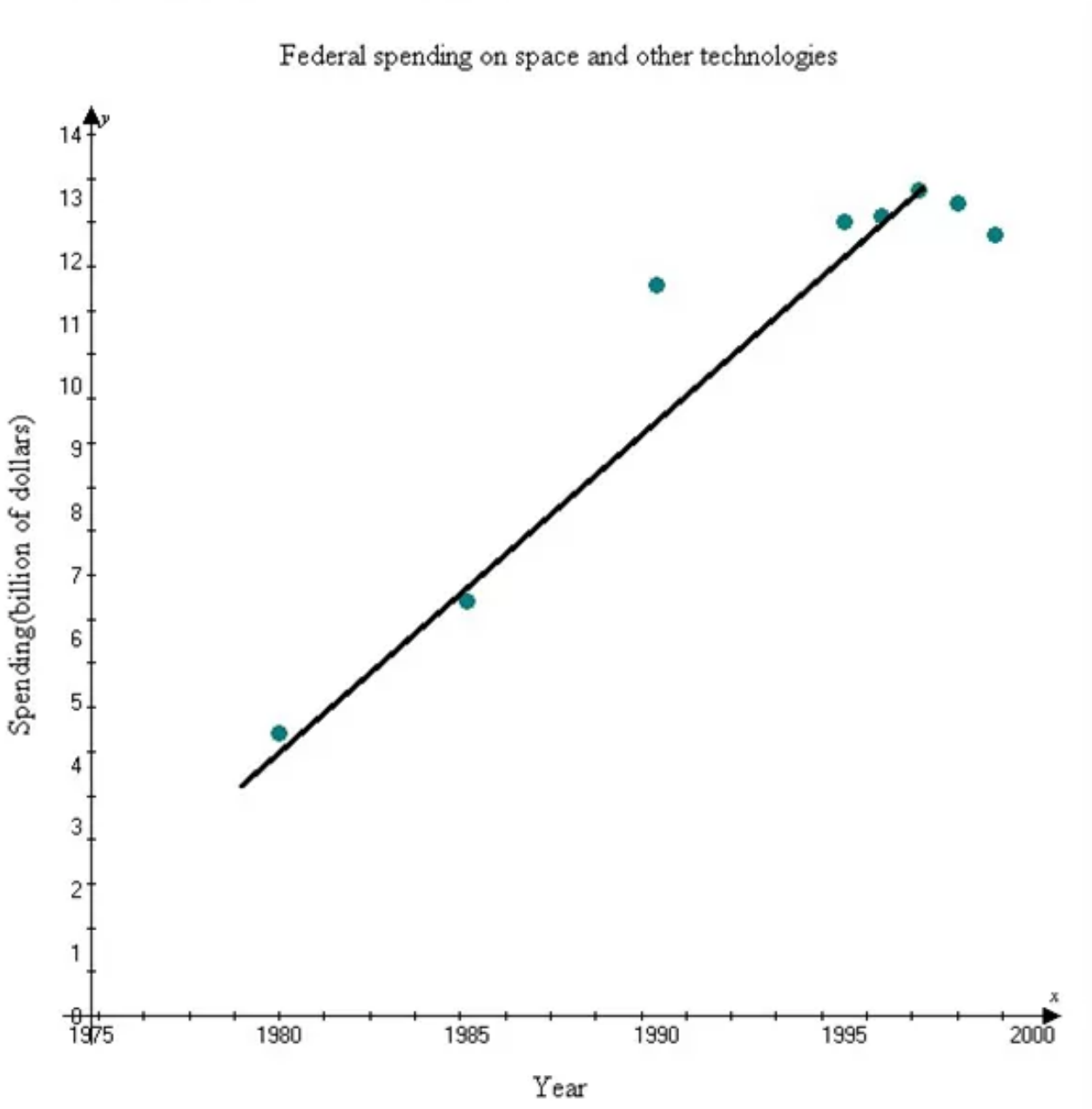
Answer 25PA.

Consider to drawn the line fit for the scatter plot

Year	1980	1985	1990	1995	1996	1997	1998	1999
Spending (billions of dollars)	4.5	6.6	11.6	12.6	12.7	13.1	12.9	12.4

No one line passes through the all the data points

Then we draw the line to close the data points



Hence the required solution scatter plot line is drawn.

Answer 26PA.

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

Year	1980	1985	1990	1995	1996	1997	1998	1999
Spending (billions of dollars)	4.5	6.6	11.6	12.6	12.7	13.1	12.9	12.4

Consider the points $(x_1, y_1) = (1980, 4.5)$ and $(x_2, y_2) = (1985, 6.6)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

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

$$m = \frac{6.6 - 4.5}{1985 - 1980}$$

$$m = \frac{2.1}{5}$$

$$m = 0.42$$

Now slope $m = 0.42$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (1980, 4.5)$ and $m = 0.42$ in the point slope formula

Solve the equation

$$y - 4.5 = 0.42(x - 1980) \qquad \text{By distributive property } a(b + c) = ab + ac$$

$$y - 4.5 = 0.42x - 831.6$$

$$y - 4.5 + 4.5 = 0.42x - 831.6 + 4.5 \qquad \text{Adding 4.5 on both sides}$$

$$y = 0.42x - 827.1$$

Hence the required solution slope-intercept form of the equation for the fit of line is

$$\boxed{y = 0.42x - 827.1}.$$

Answer 27PA.

Consider to predict the in which amount that will be spent the space and other technologies in 2005

Year	1980	1985	1990	1995	1996	1997	1998	1999
Spending(billions of dollars)	4.5	6.6	11.6	12.6	12.7	13.1	12.9	12.4

Consider the points $(x_1, y_1) = (1980, 4.5)$ and $(x_2, y_2) = (1985, 6.6)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

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

$$m = \frac{6.6 - 4.5}{1985 - 1980}$$

$$m = \frac{2.1}{5}$$

$$m = 0.42$$

Now slope $m = 0.42$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (1980, 4.5)$ and $m = 0.42$ in the point slope formula

Solve the equation

$$y - 4.5 = 0.42(x - 1980) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 4.5 = 0.42x - 831.6$$

$$y - 4.5 + 4.5 = 0.42x - 831.6 + 4.5 \qquad \text{Adding 4.5 on both sides}$$

$$y = 0.42x - 827.1$$

Hence the required solution slope-intercept form of the equation for the fit of line is $\boxed{y = 0.42x - 827.1}$.

Let us consider $x = 2005$

Use equation $y = 0.42x - 827.1$ x is the no of years and y is the no of spending billions of dollars

And replace $x = 2005$ in the slope intercept form equation

Solve the equation

$y = 0.42x - 827.1$ Original equation

$y = 0.42(2005) - 827.1$ Replace $x = 2005$

$y = 842.1 - 827.1$ simplify

$y = 15$

Hence the required solution they spent amount on space and other technologies $\boxed{y = 15}$ billions.

Answer 29PA.

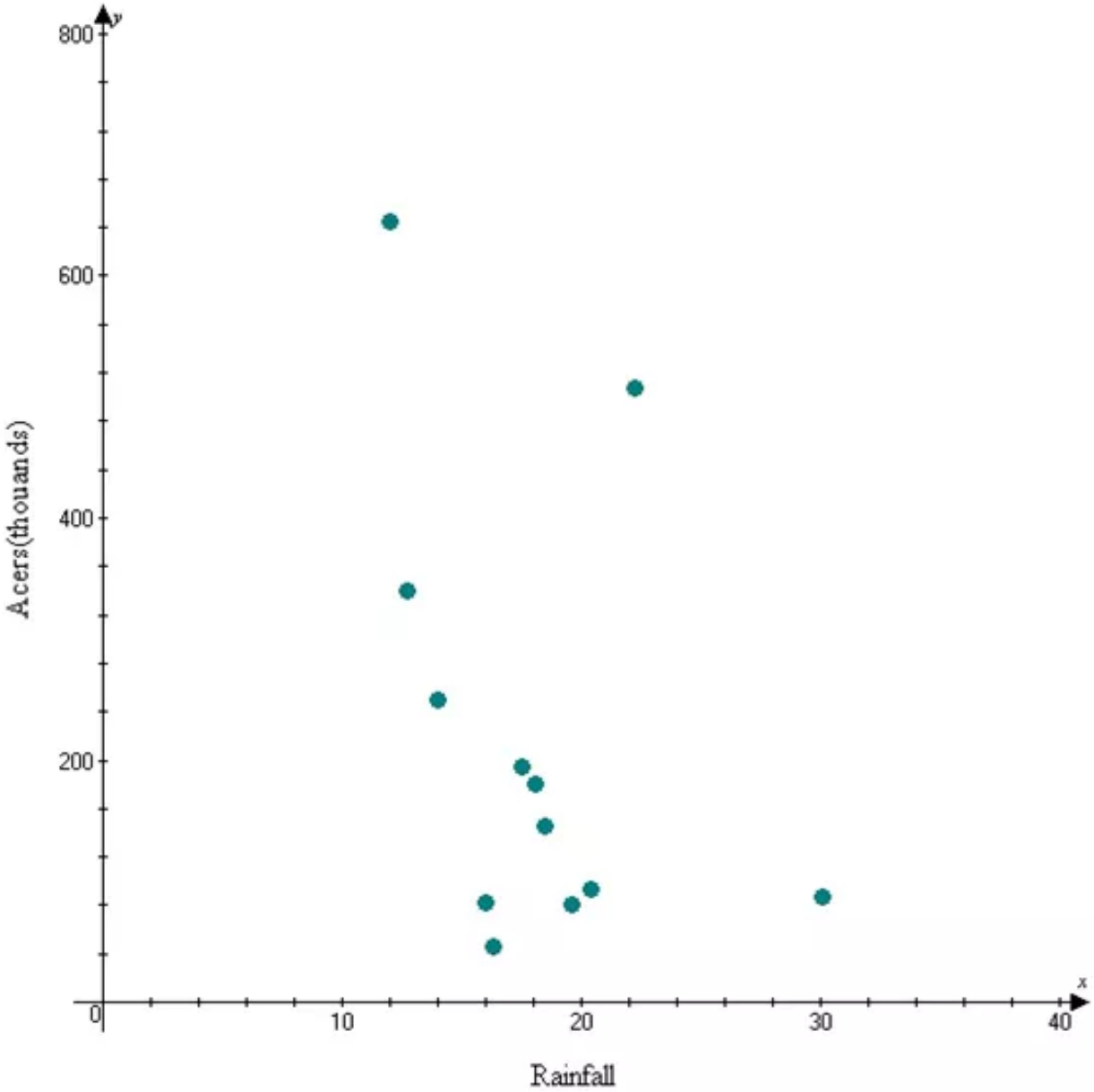
Consider to the draw the table Florida's Burned Acreage and spring rainfall

Year	Rianfall (inches)	Acres (thousands)	Year	Rainfall (inches)	Acres (thousands)
1988	17.5	194	1994	18.1	180
1989	12.0	645	1995	16.3	46
1990	14.0	250	1996	20.4	94
1991	30.1	87	1997	18.5	146
1992	16.0	83	1998	22.2	507
1993	19.6	80	1999	12.7	340

Consider to draw the scatter plot with

Let x be the independent variable to the rainfall

Let y be the dependent variable to the acres burned



In the drawn scatter plot graph is negative correlation

Because here the rainfall of x is increases

And the Acers of burned y is decreased

Hence the required solution of scatter graph is drawn.

Answer 30PA.

Consider to the draw the table Florida's Burned Acreage and spring rainfall

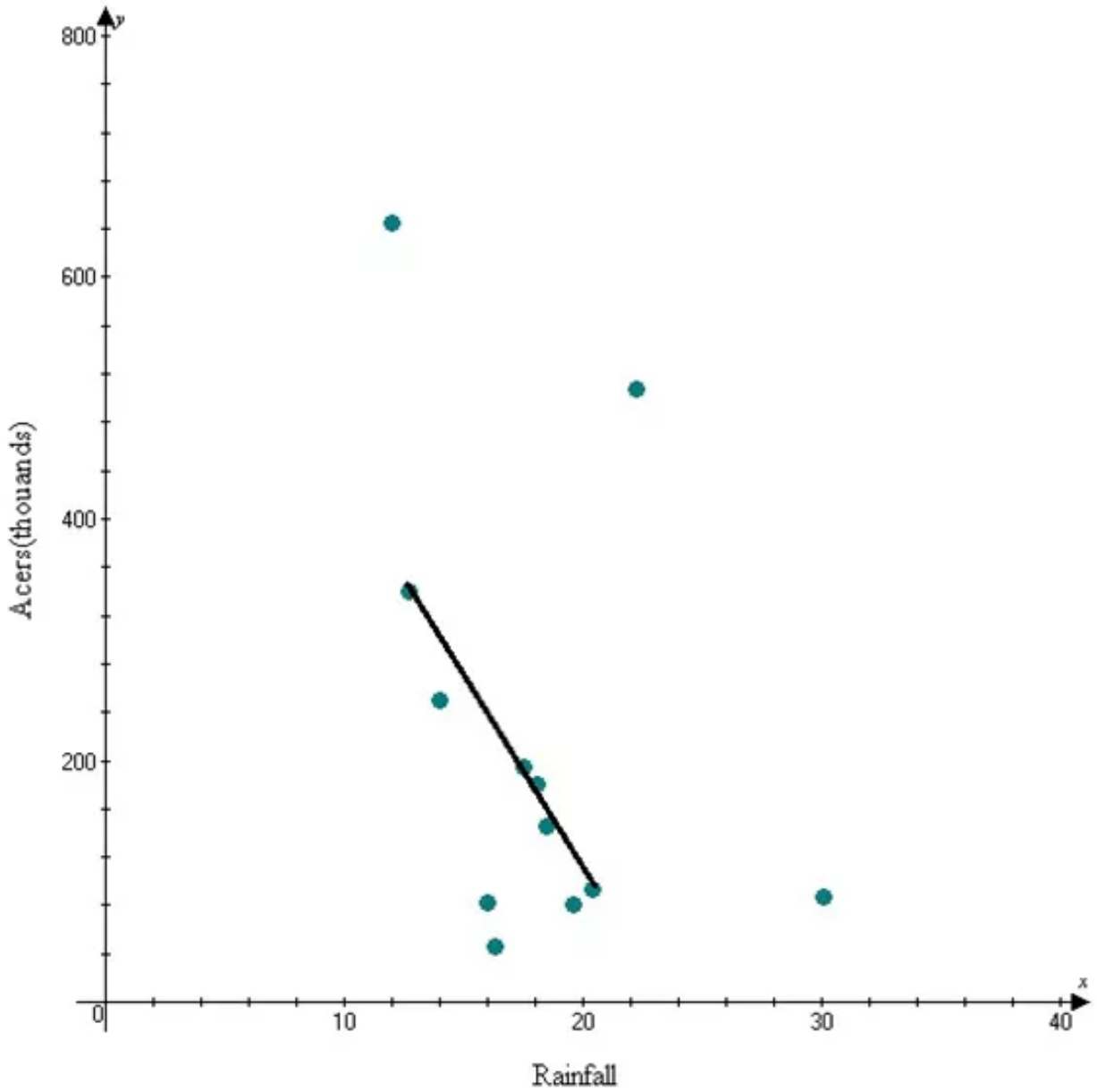
Year	Rianfall (inches)	Acres (thousands)	Year	Rainfall (inches)	Acres (thousands)
1988	17.5	194	1994	18.1	180

1989	12.0	645	1995	16.3	46
1990	14.0	250	1996	20.4	94
1991	30.1	87	1997	18.5	146
1992	16.0	83	1998	22.2	507
1993	19.6	80	1999	12.7	340

Consider to draw the a line fit for the data

Here no one line will passes through the data points

Draw the line to close the data points



Hence the required solution of the fit for the data line is drawn.

Answer 31PA.

Consider to the draw the table Florida's Burned Acreage and spring rainfall

Year	Rianfall (inches)	Acres (thousands)	Year	Rainfall (inches)	Acres (thousands)
1988	17.5	194	1994	18.1	180
1989	12.0	645	1995	16.3	46
1990	14.0	250	1996	20.4	94
1991	30.1	87	1997	18.5	146
1992	16.0	83	1998	22.2	507
1993	19.6	80	1999	12.7	340

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

Consider the points $(x_1, y_1) = (17.5, 194)$ and $(x_2, y_2) = (12.7, 340)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

$$m = \frac{340 - 194}{12.7 - 17.5}$$

$$m = \frac{146}{-4.8}$$

$$m = -30.4$$

Now slope $m = -30.4$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (17.5, 194)$ and $m = -30.4$ in the point slope formula

Solve the equation

$$y - 194 = -30.4(x - 17.5) \qquad \text{By distributive property } a(b+c) = ab + ac$$

$$y - 194 = -30.4x + 532$$

$$y - 194 + 194 = -30.4x + 532 + 194 \qquad \text{Adding 194 on both sides}$$

$$y = -30.4x + 726$$

Hence the required solution slope-intercept form of the equation for the fit of line is

$$\boxed{y = -30.4x + 726}.$$

Answer 32PA.

Consider to the draw the table Florida's Burned Acreage and spring rainfall

Year	Rianfall (inches)	Acres (thousands)	Year	Rainfall (inches)	Acres (thousands)
1988	17.5	194	1994	18.1	180
1989	12.0	645	1995	16.3	46
1990	14.0	250	1996	20.4	94
1991	30.1	87	1997	18.5	146
1992	16.0	83	1998	22.2	507
1993	19.6	80	1999	12.7	340

Consider the spring rainfall of 8.25 inches in 2000

Consider the points $(x_1, y_1) = (17.5, 194)$ and $(x_2, y_2) = (12.7, 340)$

Find the slope of the points

Formulae of slope

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

Substitute the values in the slope formula

$$m = \frac{340 - 194}{12.7 - 17.5}$$

$$m = \frac{146}{-4.8}$$

$$m = -30.4$$

Now slope $m = -30.4$

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

Formulae of point slope form

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

Substitute the values $(x_1, y_1) = (17.5, 194)$ and $m = -30.4$ in the point slope formula

Solve the equation

$$y - 194 = -30.4(x - 17.5)$$ By distributive property $a(b + c) = ab + ac$

$$y - 194 = -30.4x + 532$$

$$y - 194 + 194 = -30.4x + 532 + 194$$ Adding 194 on both sides

$$y = -30.4x + 726$$

Then estimate the number of acres is burned by wildfires in 2000

Let us take $x = 8.25$

Use the equation $y = -30.4x + 726$ here x is the number of inches of rainfall and y is the number of Acers burned

Substitute the values $x = 8.25$ in the equation $y = -30.4x + 726$ solve the equation we get

$y = -30.4x + 726$ Original equation

$y = -30.4(8.25) + 726$ Replace $x = 8.25$

$y = -250.8 + 726$ Simplify

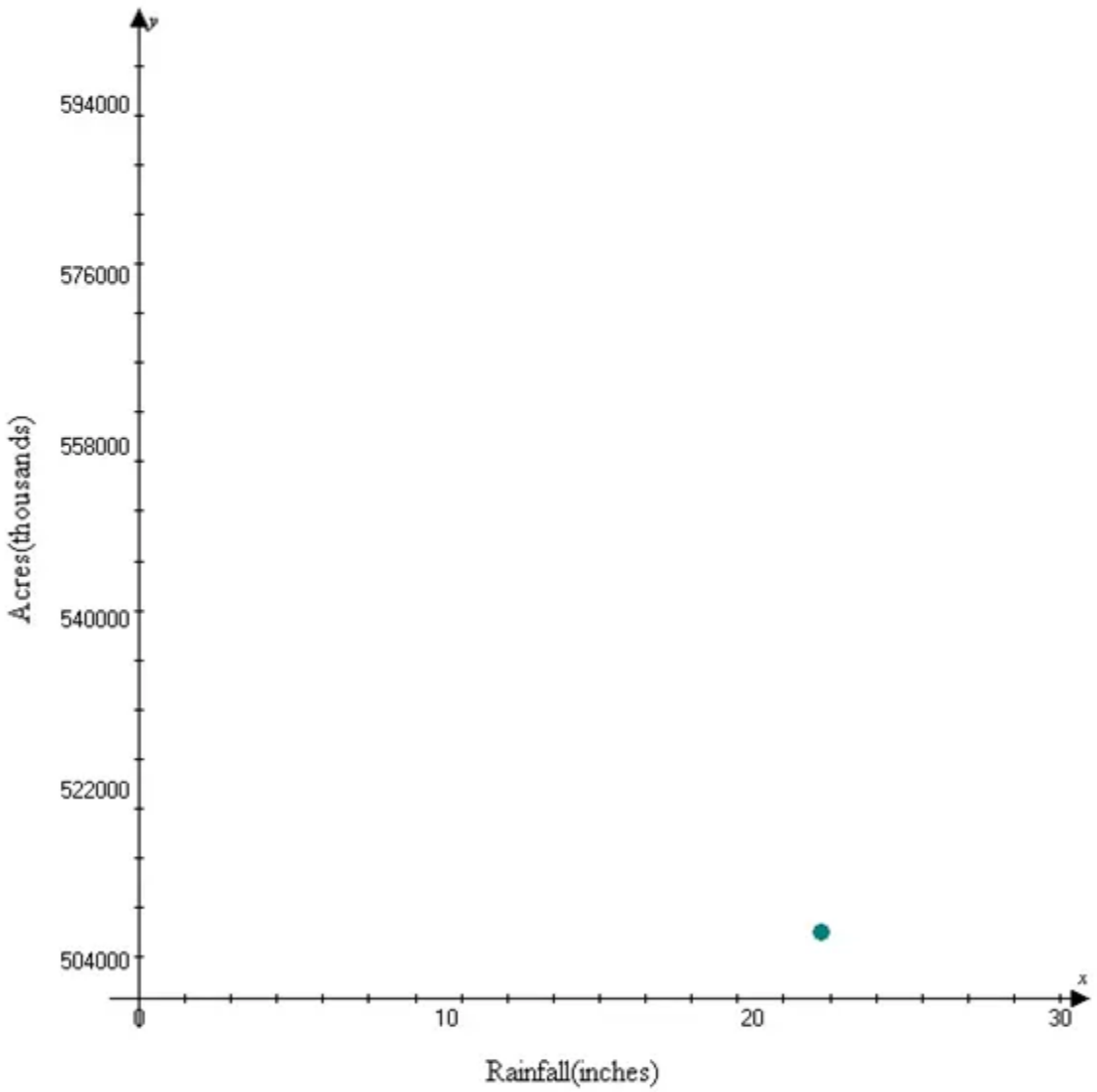
$y = 475.2$

Hence the required solution the number of Acers burned by wildfires in 2000 is $\boxed{y = 475.2}$.

Answer 33PA.

Consider to draw the scatter plot graph

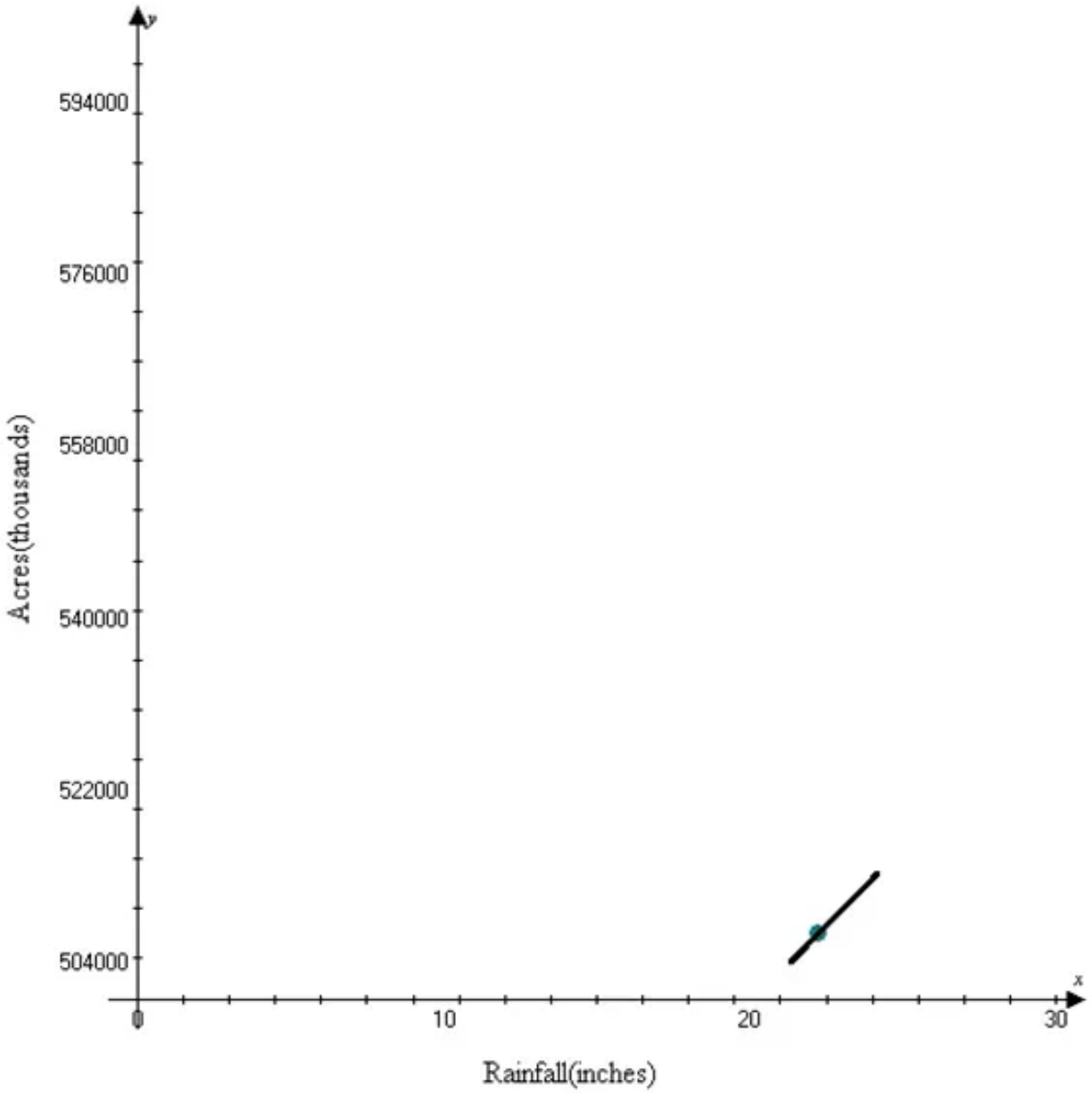
Year	Rainfall (inches)	Acres (thousands)
1998	22.2	507,000



Let x be the independent variable of number of years and y be the dependent variable of number of years

Hence the required solution of scatter plot graph is drawn

Consider to draw the line fit for the data



No one line will not passes through the data points

We draw the line passes through close to the data points

Hence the required solution of line fit for the data.

Answer 37PA.

Consider the such as arm span and the height collect a own data and draw the line fit for the data

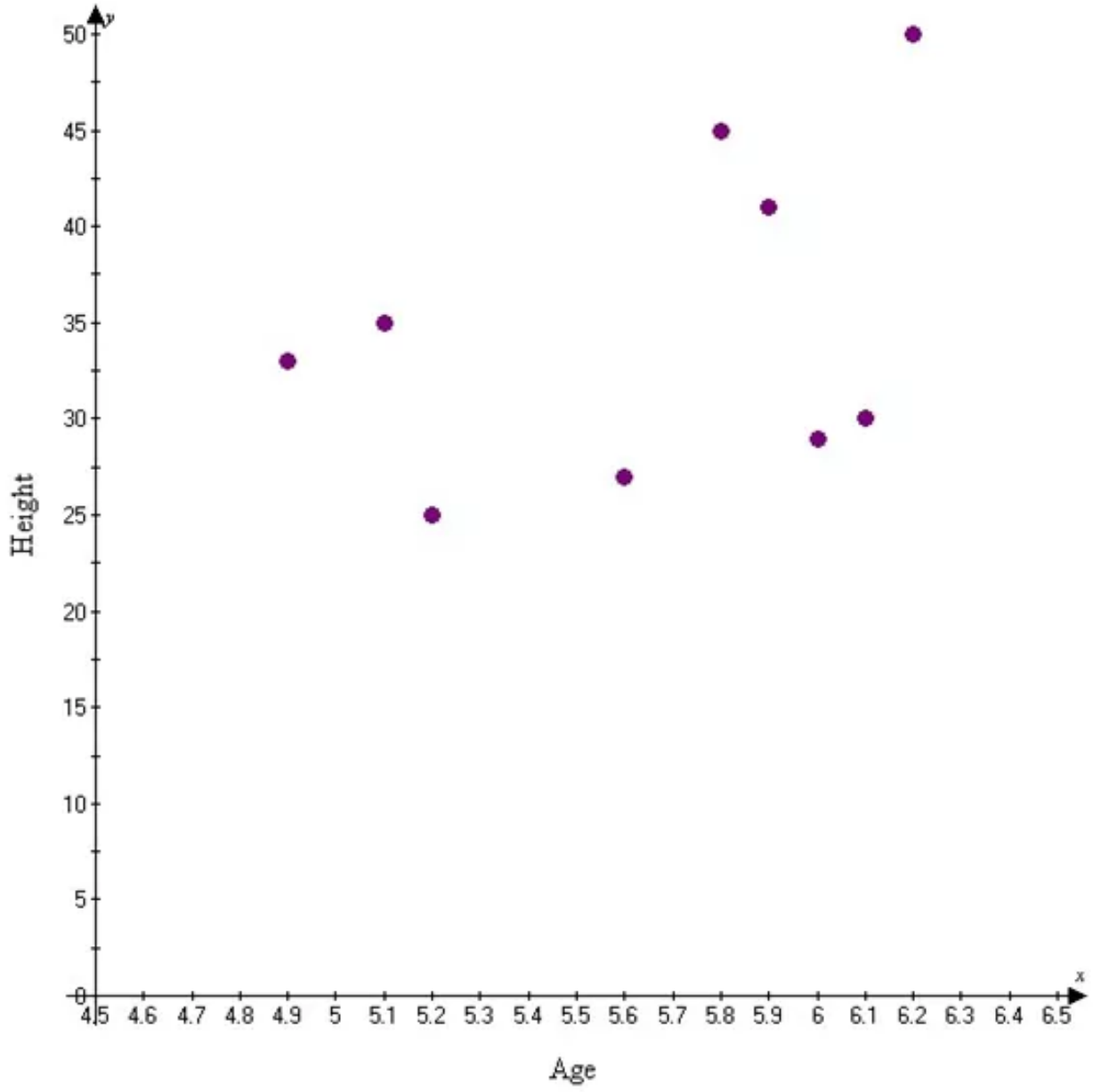
Height	5.1	5.2	5.6	6	6.1	6.2	5.8	5.9	4.9
Age	35	25	27	29	30	50	45	41	33

Age								

Consider to draw the line fit for the data

Let x be the independent variable to the height

Let y be the dependent variable to the age



In the drawn scatter plot graph is positive correlation

Because here the height of x is increases

And the age of y increased

Hence the required solution of scatter plot is drawn

Consider to find the predict of the age and height

Consider any two points and find the slope of the line and it written in the slope intercept form

And the slope intercept form equation is use and find the predict the height

Use the equation $y=10x-16$

Assume let us take $x=6.2$

Substitute the value in the equation

Solve the equation

$y=10x-16$ Original equation

$y=10(6.2)-16$ Replace $x=6.2$

$y=62-16$

$y=46$

Hence the required solution of the predict of the age is $\boxed{y=46}$

Answer 39PA.

Consider the equation for the line the best of the data in the table

x	y
1	5
2	7
3	7
4	11

And given the equations are

$(A)\ \ y=x+4$

$(B)\ y=2x+3$

$(C)\ y=7$

$(D)\ y=4x-5$

In above the four equations for the line best fit for the data in the table

The equation is $y=2x+3$

Explanation of the why this equation for the line only best fit for the data in the table

Consider any two points and find he slope

Slope formula

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

And the points $(1,5)$ and $(2,7)$ and the $(x_1,y_1)=(1,5)$ and $(x_2,x_1)=(2,7)$

Substitute the values in the slope formula

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

$$m=\frac{7-5}{2-1}$$

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

$$m=2$$

And slope $m=2$

Point slope formula

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

Substitute the values $m=2$ and $(x_1,y_1)=(1,5)$ in the point slope formula

Solve the equation

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

$$y-5=2x-2$$

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

$$y=2x+3$$

Hence the required solution of line fit for the data in the table satisfies the equation`

$$\boxed{y=2x+3}.$$

Answer 40PA.

Need to find the relationship between a city's latitude and its January temperature

The latitude of a place on Earth is the measure of its distance from the equator

The relation between a city's latitude and its January temperature below is a table containing the latitude and January temperatures for fifteen US cities

US city	Lattitude	January Mean Temperature
New York	42 : 40 N	20.7°F
New mexico	35 : 07N	34.3°F
Alaska	61 : 11N	14.9°F
Alabama	33 : 32N	41.7°F
South Carolina	32 : 47N	47.1°F
illinios	41 : 50N	21.0°F
Ohio	39 : 59N	26.3°F
Minnesota	46 : 47N	7.0°F
Fairbamks, Alaska	64 : 50N	−10.1°F
Texas	29 : 14N	52.9°F
Hawali	21 : 19N	72.9°F
Nevada	36 : 12N	45.1°F
Florida	25 : 47N	67.3°F
Virginia	37 : 32N	35.8°F
Arizona	32 : 12N	51.3°F

As the latitude increases the temperature decreases

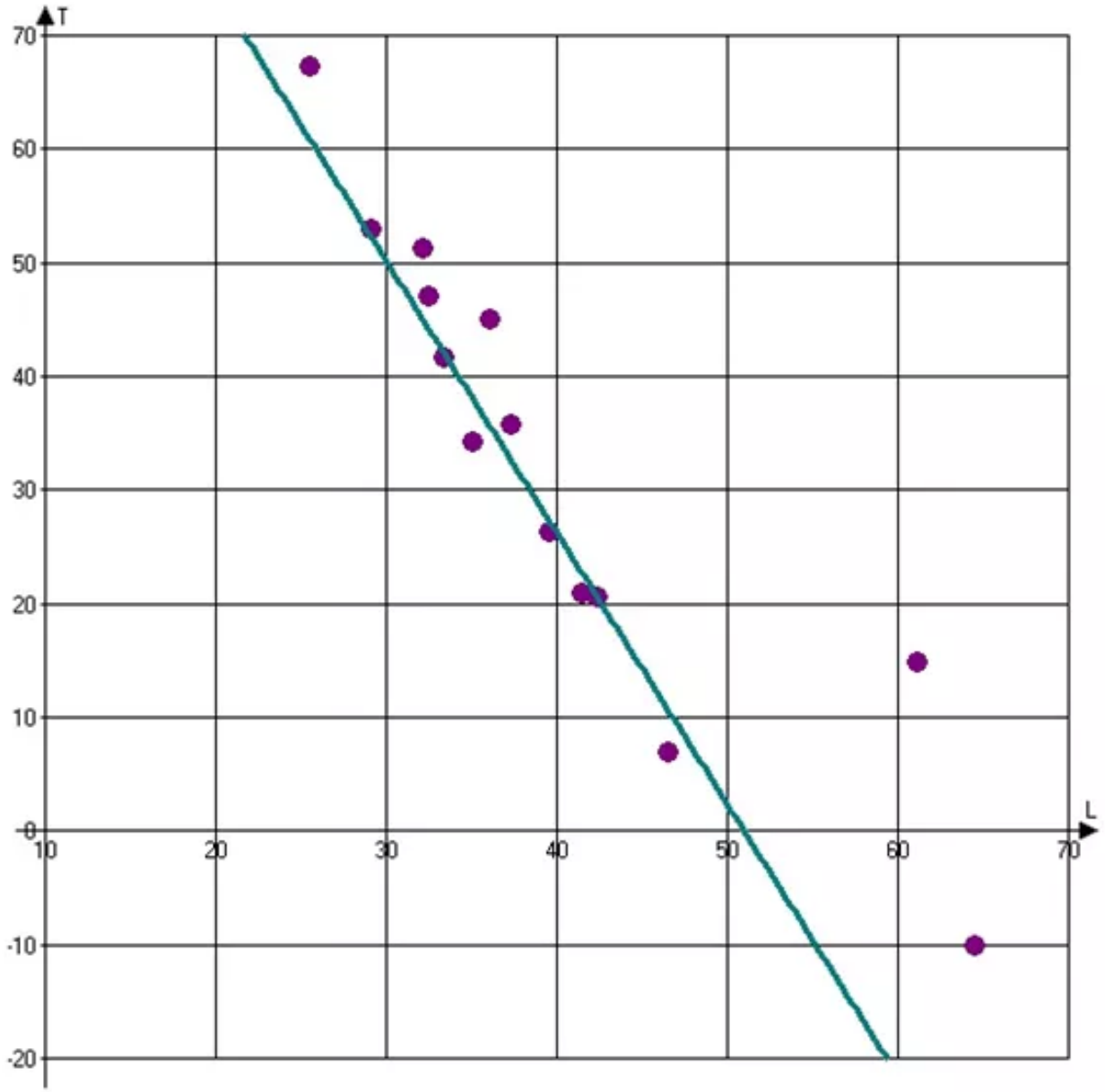
Thus the relationship between a city's latitude and its mean January temperature is as the latitude increases the temperature decreases.

Answer 42PA.

Need make a scatter plot and draw a line of fit for the data

US city	Lattitude	January Mean Temperature
New York	42 : 40 N	20.7°F
New mexico	35 : 07N	34.3°F
Alaska	61 : 11N	14.9°F
Alabama	33 : 32N	41.7°F
South Carolina	32 : 47N	47.1°F
illinios	41 : 50N	21.0°F
Ohio	39 : 59N	26.3°F
Minnesota	46 : 47N	7.0°F
Fairbamks, Alaska	64 : 50N	−10.1°F
Texas	29 : 14N	52.9°F
Hawali	21 : 19N	72.9°F
Nevada	36 : 12N	45.1°F
Florida	25 : 47N	67.3°F
Virginia	37 : 32N	35.8°F
Arizona	32 : 12N	51.3°F

The graph for the given data with a scatter plot is shown below

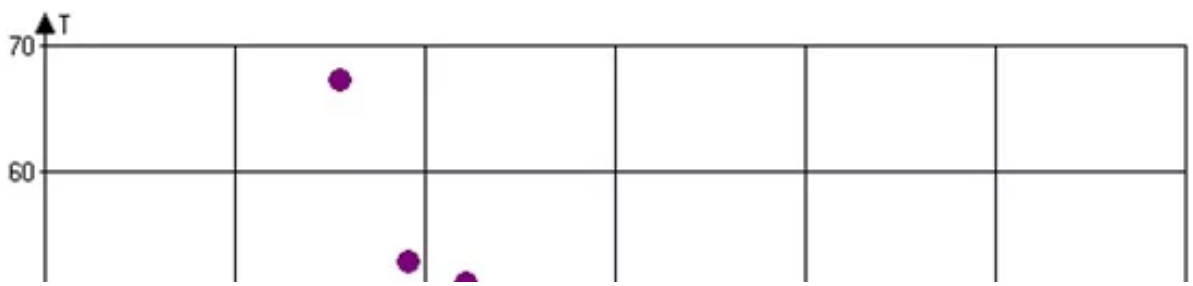


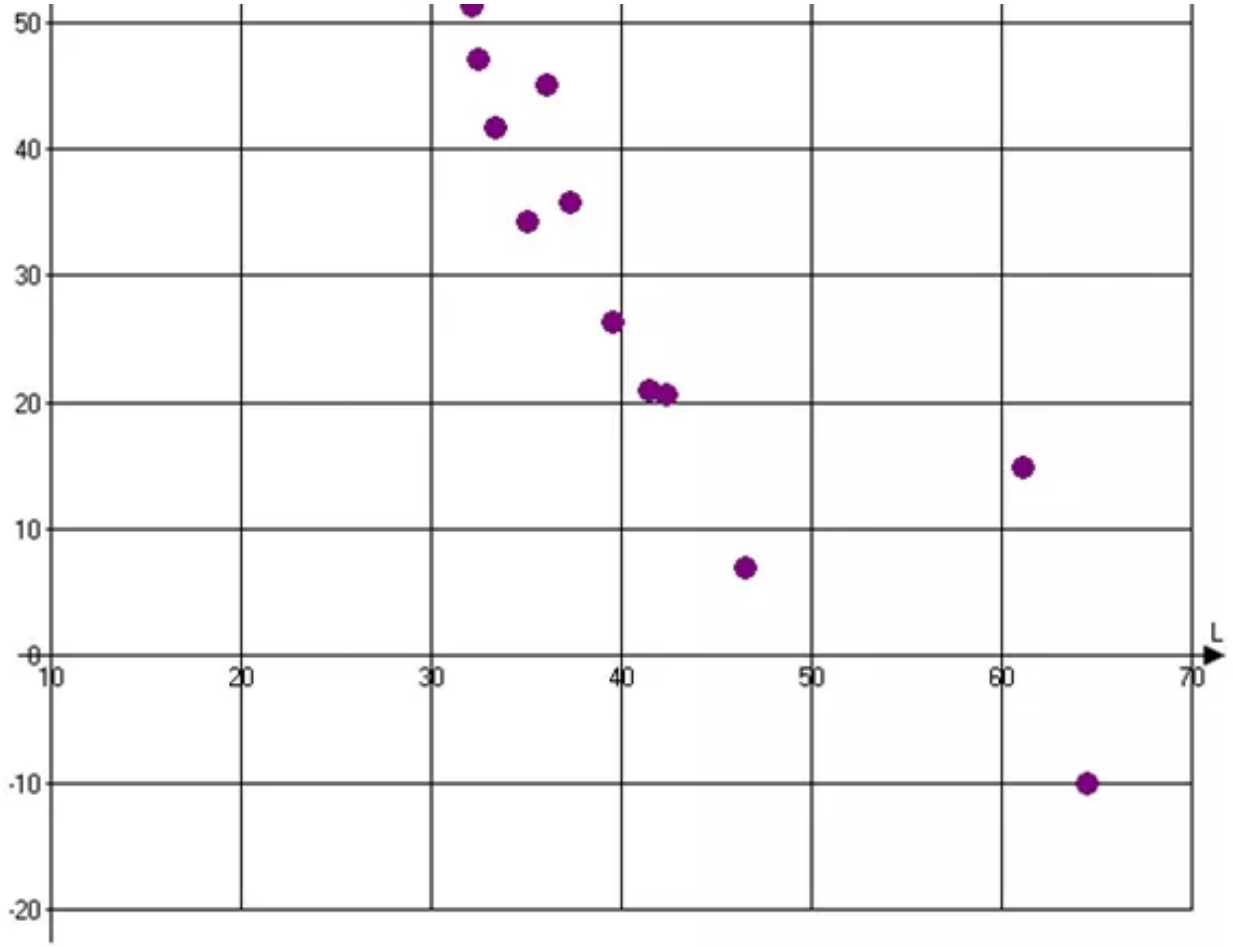
Hence the required graph is drawn.

Answer 43PA.

Need to write an equation for the line of fit

The graph for the given data with a scatter plot is shown below





Let us take $(x_1, y_1) = (42.40, 20.7)$ and $(x_2, y_2) = (35.07, 34.3)$

Slope of the line passing through the points (x_1, y_1) and (x_2, y_2) is given by

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

$$m = \frac{34.3 - 20.7}{35.07 - 42.40}$$ Replacing the values

$$= \frac{13.6}{-7.33}$$ Simplify

$$= -1.85$$

Now substituting $m = -1.85, x_1 = 42.40$ and $y_1 = 35.07$

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

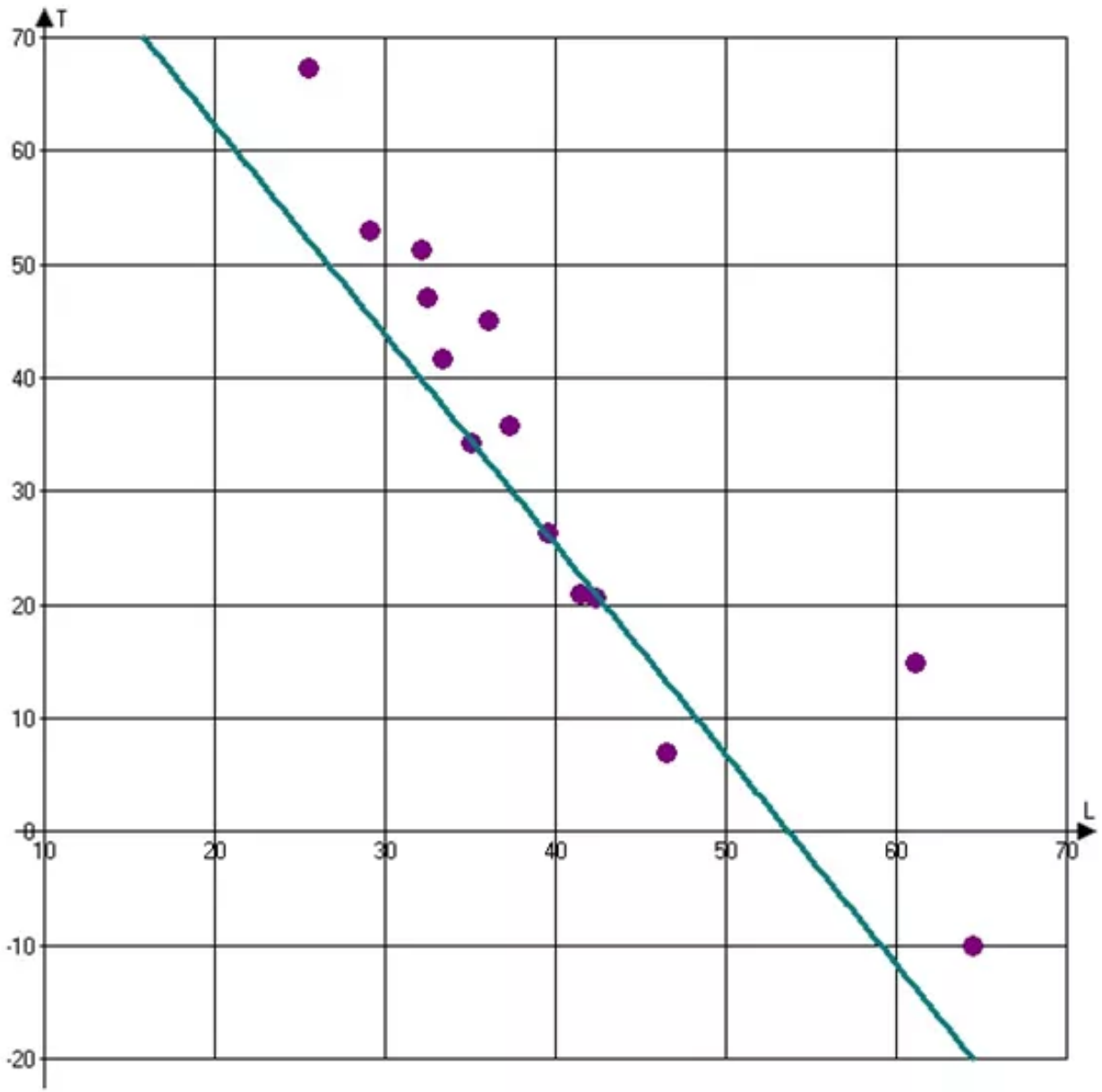
$$y - 20.7 = -1.85(x - 42.40) \qquad \text{Replacing the values}$$

$$y - 20.7 = -1.85x + 78.66 \qquad \text{By distributive property}$$

$$y = -1.85x + 99.36 \qquad \text{Adding 20.7 on both sides}$$

Thus the required equation for the line to fit is $\boxed{y = -1.85x + 99.36}$

And the graph after entering an equation for the line to fit is shown below



Answer 45MYS.

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

Consider the equation of parallel to the graph of $y=-4x+5$

The slope-intercept form of an equation for a line that passes through the point $(-2,5)$

The line parallel to $y=-4x+5$ has the same slope -4.

Replace m with -4

Substitute the values $(x_1,y_1)=(-2,5)$ and $m=-4$ in the point slope form

Formulae of point slope form $y-y_1=m(x-x_1)$

Solve the equation we get

$$y-5=-4(x-(-2))$$
$$y-5=-4(x+2) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y-5+5=-4x-8+5 \qquad \text{Adding 5 on both sides}$$
$$y=-4x-3$$

Hence the required solution slope-intercept form of equation for a line that satisfies the parallel graph of equation is $\boxed{y=-4x-3}$.

Answer 46MYS.

Need to find the slope intercept form of an equation for the line that satisfies for the condition perpendicular to the graph of $y=2x+3$ and passes through $(0,0)$

Consider the perpendicular to the graph of line $y=2x+3$

Given that the slope-intercept form of an equation for the line that passes through point $(0,0)$

The line perpendicular to $y=2x+3$ has the same slope 2. So the slope of the line perpendicular to this line is the opposite reciprocal of 2 or $-\frac{1}{2}$

Formulae of point slope form

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

Substitute the values $x_1=0, y_1=0, m=-\frac{1}{2}$ in the point slope form

Solve the equation we get

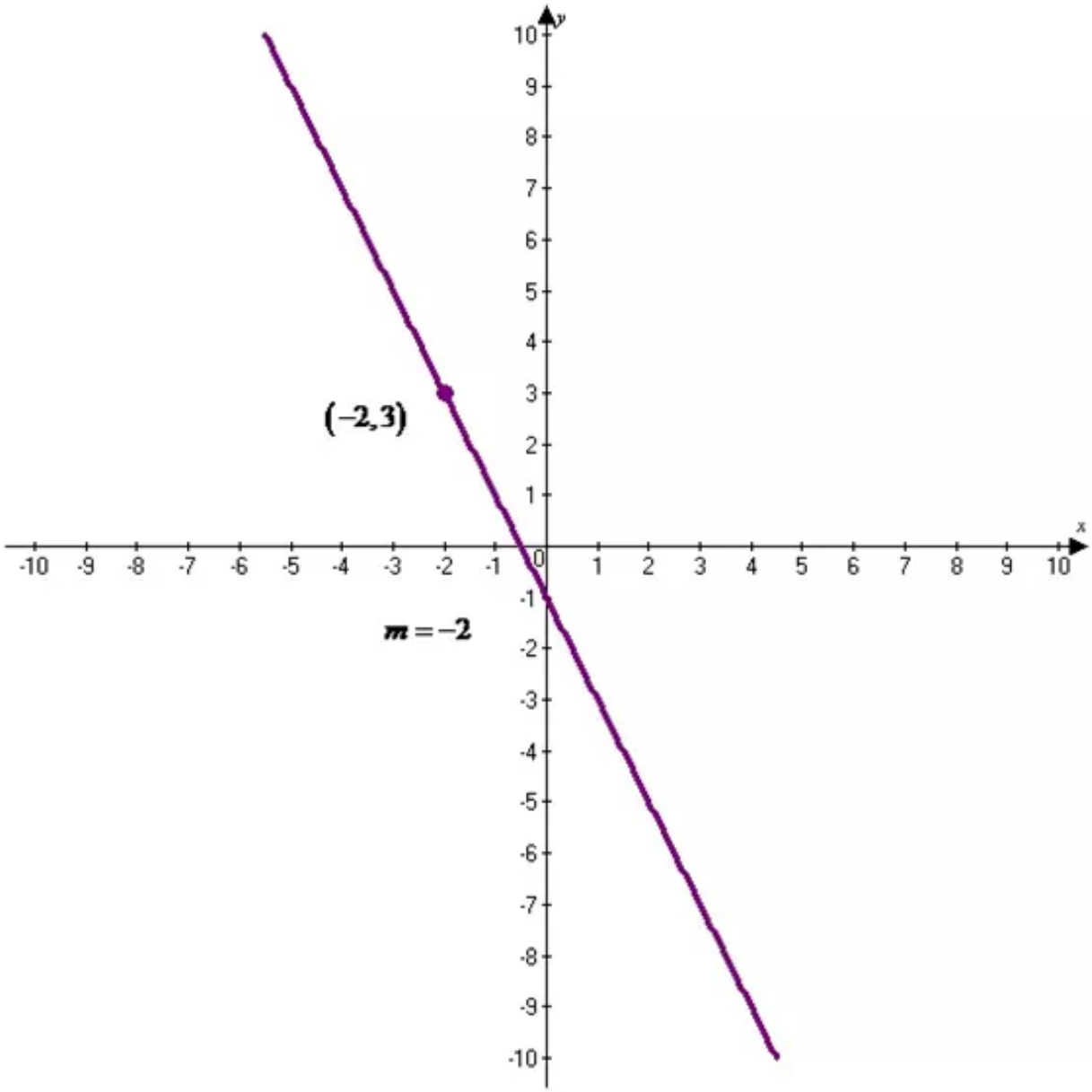
$$y-y_1=m(x-x_1) \qquad \text{point slope formula}$$
$$y-0=-\frac{1}{2}(x-0) \qquad \text{By distributive property } a(b+c)=ab+ac$$
$$y=-\frac{1}{2}-0$$
$$y=-\frac{1}{2}$$

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

Answer 47MYS.

Consider the point slope form of an equation for a line that passes through point with the given slope

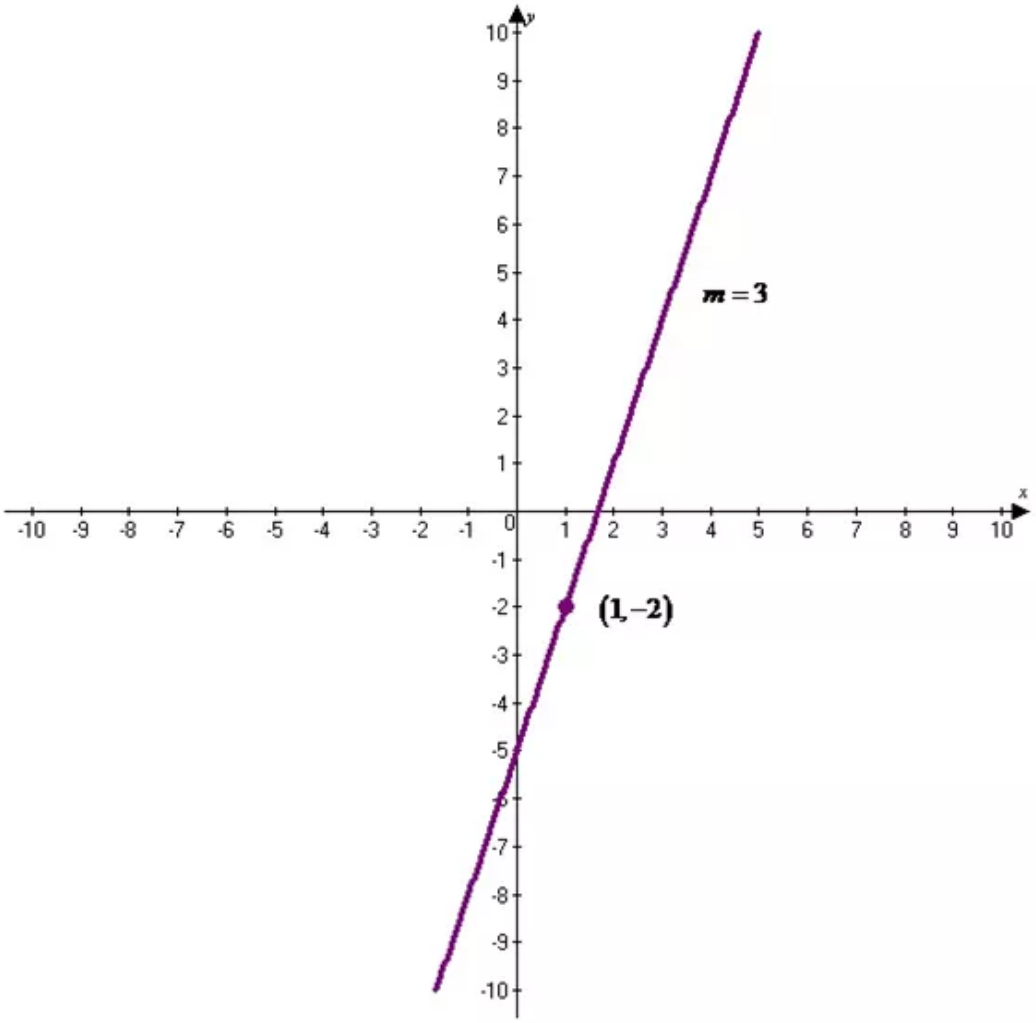
Draw the graph of the equation



Answer 48MYS.

Consider the point slope form of an equation for a line that passes through point with the given slope

Draw the graph of equation



And slope of the line

$m=-2$

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

$(-2,3)$

Formulae of point slope form

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

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

Solve the equation we get

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

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

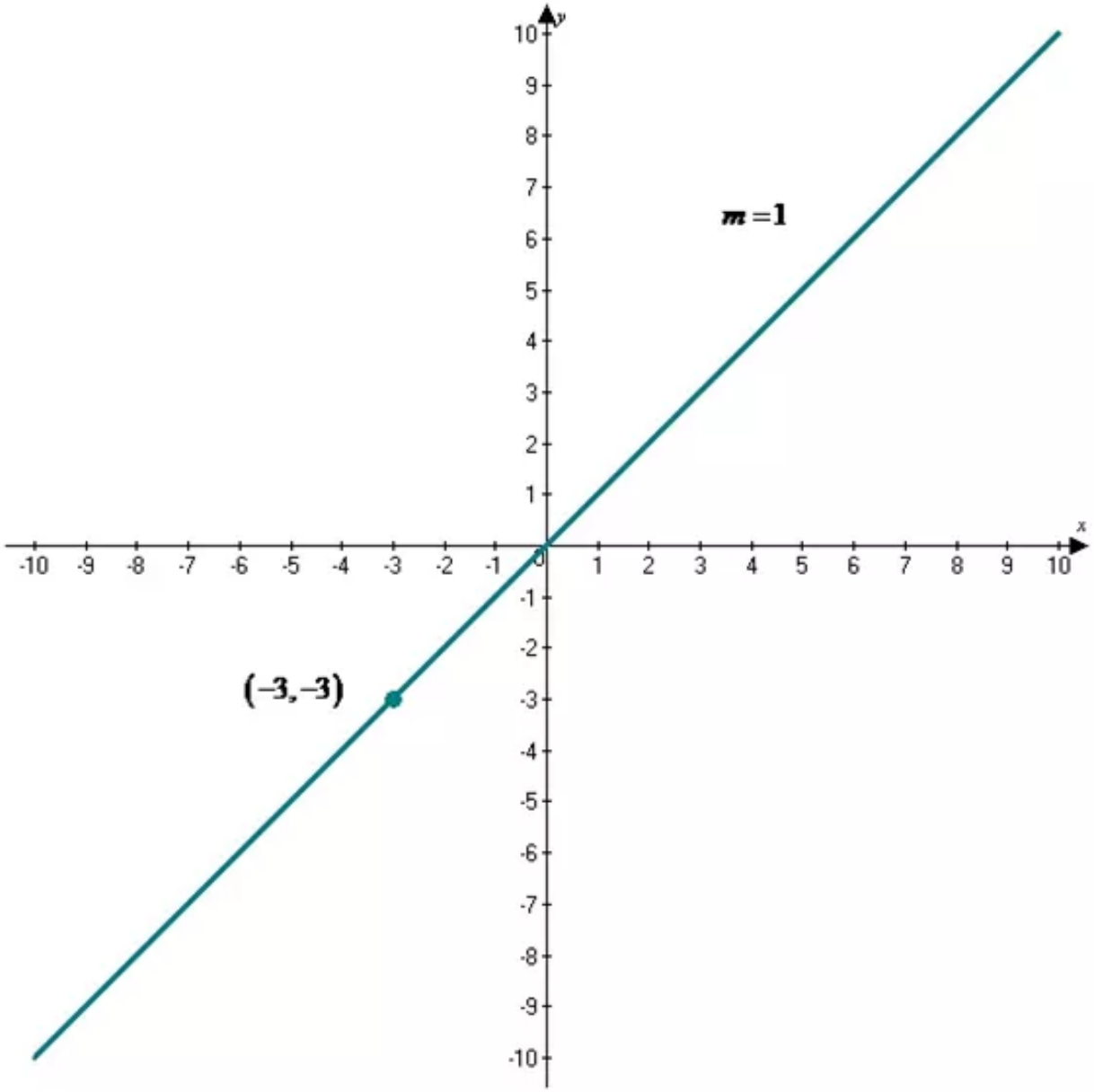
$y-3=-2(x+2)$

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

Answer 49MYS.

Consider the point slope form of an equation for a line that passes through point with the given slope

Draw the graph of equation



And slope of the line

$m=3$

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

$(1,-2)$

Formulae of point slope form

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

Substitute the values $x_1=1, y_1=-2, m=3$ in the point slope formula

Solve the equation we get

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

$y-(-2)=3(x-1)$

$y+2=3(x-1)$

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

And slope of the line

$m=1$

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

$(-3,-3)$

Formulae of point slope form

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

Substitute the values $x_1=-3, y_1=-3, m=1$ in the point slope formula

Solve the equation we get

$$y-y_1=m(x-x_1) \qquad \text{Point slope form}$$
$$y-(-3)=1(x-(-3))$$
$$y+3=1(x+3)$$

Hence the required solution the point slope form of an equation for a line that passes through the equation is $\boxed{y+3=1(x+3)}$.

Answer 50MYS.

Need to find the x and y intercepts of the graph equation

Consider the equation

$3x+4y=12$

Here first zero the x intercept then solve the equation

$x=0$

Solve the equation

$$3x+4y=12 \qquad \text{Let } x=0$$
$$3(0)+4y=12$$
$$4y=12$$
$$\frac{4}{4}y=\frac{12}{4} \qquad \text{Divided by 4 on both sides}$$

By simplification

$y=3$

Hence the required solution the y intercept of graph equation is $\boxed{y=3}$

Here next zero the y intercept then solve the equation

$$y=0$$

Solve the equation

$$\begin{aligned} 3x+4y&=12 && \text{Let } y=0\\ 3x+4(0)&=12\\ 3x+0&=12\\ 3x&=12 \end{aligned}$$

By simplification

$$\begin{aligned} \frac{3}{3}x&=\frac{12}{3} && \text{Divided 3 on both sides}\\ x&=4 \end{aligned}$$

Hence he required solution the y intercept of graph equation is $\boxed{x=4}$

Answer 51MYS.

Need to find the x and y intercepts of the graph equation

Consider the equation

$$2x-5y=8$$

Here first zero the x intercept then solve the equation

$$x=0$$

Solve the equation

$$\begin{aligned} 2x-5y&=8 && \text{Let } x=0\\ 2(0)-5y&=8\\ 0-5y&=8\\ \frac{-5}{-5}y&=\frac{8}{-5} && \text{Divided by } -5 \text{ on both sides} \end{aligned}$$

By simplification

$$\begin{aligned} y&=-\frac{8}{5}\\ y&=-1.6 \end{aligned}$$

Hence the required solution the y intercept of graph equation is $\boxed{y=-1.6}$

Here next zero the y intercept then solve the equation

$$y=0$$

Solve the equation

$$\begin{aligned} 2x-5y&=8 && \text{Let } y=0\\ 2x-5(0)&=8\\ 2x-0&=8\\ 2x&=8 \end{aligned}$$

By simplification

$$\begin{aligned} \frac{2}{2}x&=\frac{8}{2} && \text{Divided by 2 on both sides}\\ x&=4 \end{aligned}$$

Hence he required solution the y intercept of graph equation is $\boxed{x=4}$.

Answer 52MYS.

Need to find the x and y intercepts of the graph equation

Consider the equation

$$y=3x+6$$

Here first zero the x intercept then solve the equation

$$x=0$$

Solve the equation

$$\begin{aligned} y&=3x+6 && \text{Let } x=0\\ y&=3(0)+6\\ y&=0+6\\ y&=6 \end{aligned}$$

Hence the required solution the y intercept of graph equation is $\boxed{y=6}$

Here next zero the y intercept then solve the equation

$$y=0$$

Solve the equation

$$\begin{aligned} y&=3x+6 && \text{Let } y=0\\ 0&=3x+6\\ -6&=3x+6-6 && \text{Adding } -6 \text{ on both sides}\\ 3x&=-6 \end{aligned}$$

By simplification

$$\begin{aligned} \frac{3}{3}x&=-\frac{6}{3} && \text{Divided by 3 on both sides}\\ x&=-2 \end{aligned}$$

Hence he required solution the y intercept of graph equation is $\boxed{x=-2}$.

Answer 53MYS.

Consider the equation

$$\frac{r+7}{-4}=\frac{r+2}{6}$$

Solve the equation.

$$\begin{aligned} \frac{r+7}{-4}&=\frac{r+2}{6} && \text{By cross multiplication}\\ 6(r+7)&=-4(r+2) && \text{By distributive property } a(b+c)=ab+ac\\ 6r+42&=-4r-8\\ 6r+42+8&=-4r-8+8 && \text{Adding 8 on both sides} \end{aligned}$$

By simplification

$$\begin{aligned} 6r+50&=-4r\\ 6r+50+4r-50&=-4r+4r-50 && \text{Adding } +4r-50 \text{ on both sides}\\ 10r&=-50\\ \frac{10}{10}r&=\frac{-50}{10} && \text{Divided by 10 on both sides} \end{aligned}$$

By simplification

$$r=-5$$

Hence the required solution of equation is $\boxed{r=-5}$.

Answer 54MYS.

Consider the equation

$$\frac{n-(-4)}{-3}=7$$

Solve the equation.

$$\frac{n-(-4)}{-3}=7$$ By cross multiplication

$$(n+4)=7\times -3$$

$$n+4=-21$$

$$n+4-4=-21-4$$ Adding -4 on both sides

By simplification

$$n+0=-25$$

$$n=-25$$

Hence the required solution of equation is $\boxed{n=-25}$.

Answer 55MYS.

Consider the equation

$$\frac{2x-1}{5}=\frac{4x-5}{7}$$

Solve the equation.

$$\frac{2x-1}{5}=\frac{4x-5}{7}$$ By cross multiplication

$$7(2x-1)=5(4x-5)$$ By distributive property $a(b+c)=ab+ac$

$$14x-7=20x-25$$

$$14x-7+7=20x-25+7$$ Adding 7 on both sides

By simplification

$$14x=20x-18$$

$$14x-20x=20x-20x-18$$ Adding $-20x$ on both sides

$$-6x=-18$$

$$\frac{-6}{-6}x=\frac{-18}{-6}$$ Divided by -6 on both sides

By simplification

$$x=3$$

Hence the required solution of equation is $\boxed{x=3}$.