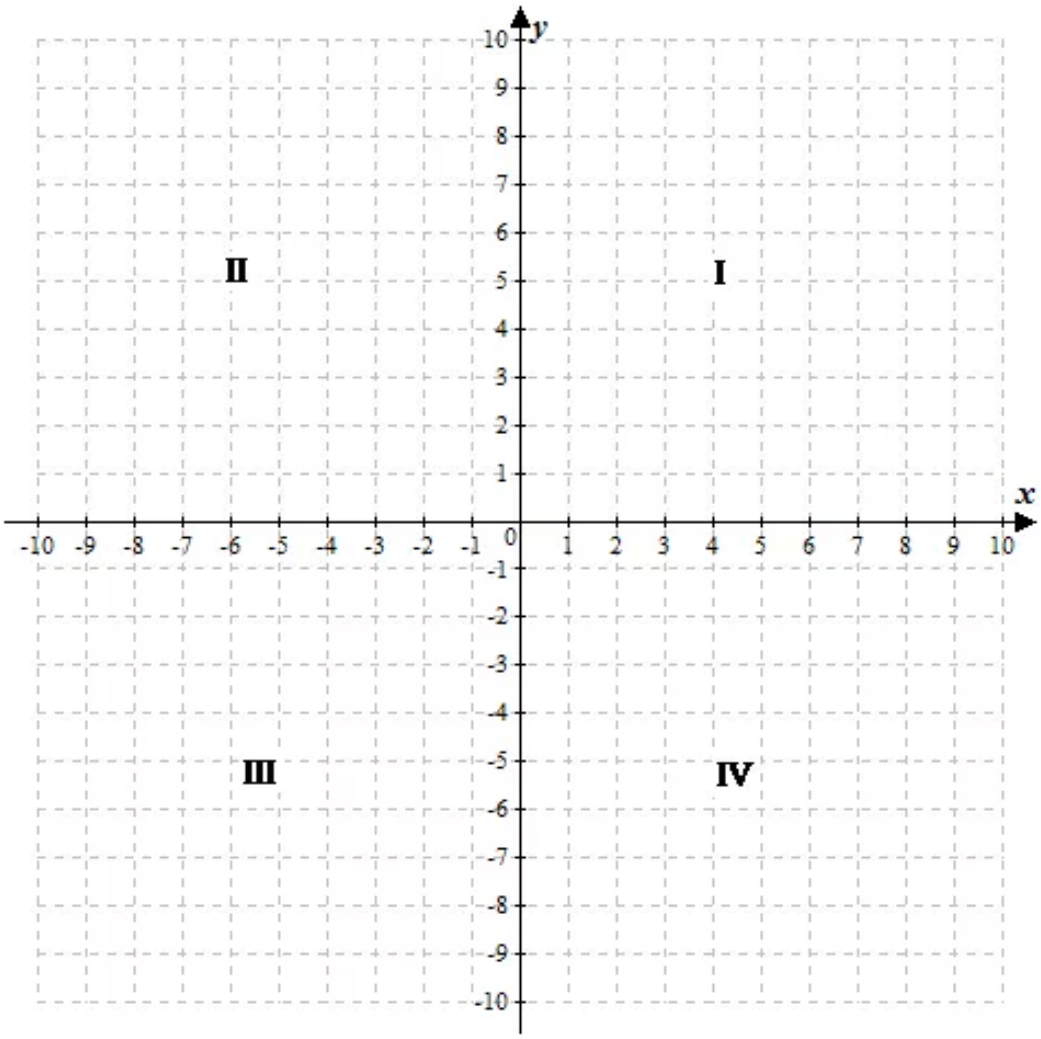
Chapter 4. Graphing Relations and Functions

Ex. 4.1

Answer 1CU.

Draw a coordinate plane. Label the origin, *x*-axis, *y*-axis, and the quadrants.



In I quadrant both *x* and *y* coordinates are positive, II quadrant *x* coordinate is negative and *y* coordinate is positive, III quadrant both *x* and *y* coordinates are negative, IV quadrant *x* coordinate is positive and *y* coordinate is negative.

Answer 2CU.

Consider,

The point $(-1,4)$ does not name the same point as $(4,-1)$.

The point $(-1,4)$ is in II quadrant, the *x* coordinate is negative and *y* coordinate is positive.

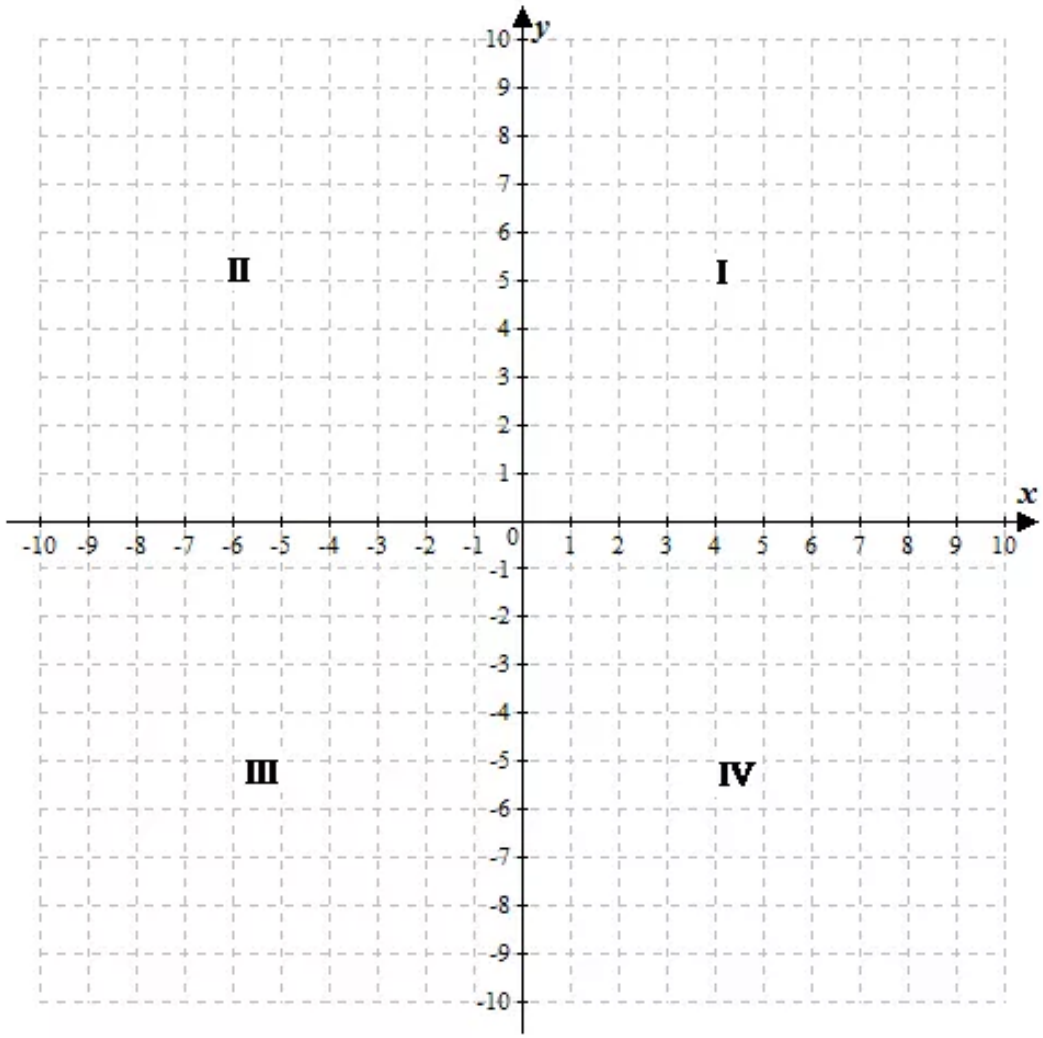
Whereas the point $(4,-1)$ is in IV quadrant, the *x* coordinate is positive and *y* coordinate is negative.

Therefore, the point $(-1,4)$ does not name the same point as $(4,-1)$.

Answer 3CU.

Consider,

Give the coordinates of a point for each quadrant in the coordinate plane .



In I quadrant both *x* and *y* coordinates are positive, the point is (2, 2).

In II quadrant *x* coordinate is negative and *y* coordinate is positive, the point is (-3, 3).

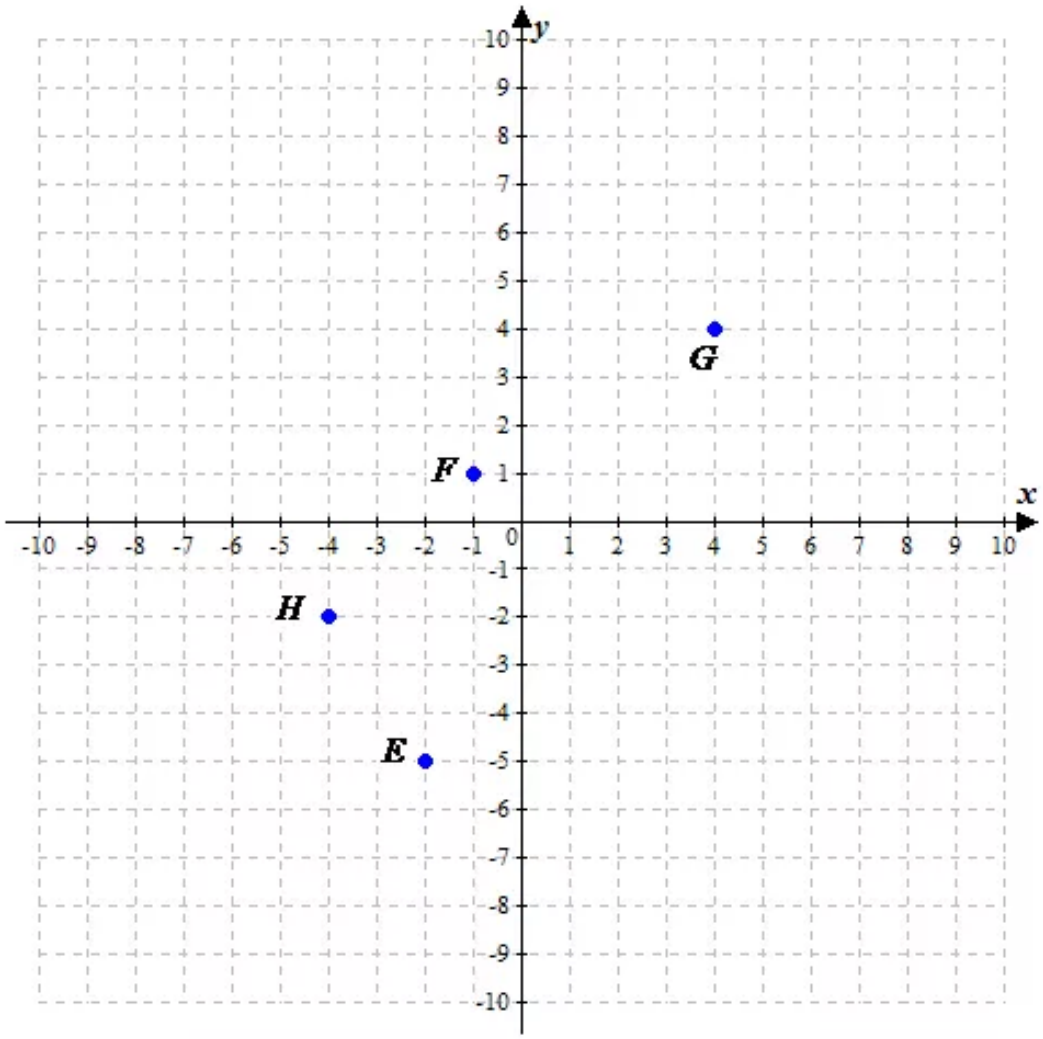
In III quadrant both *x* and *y* coordinates are negative, the point is (-4,-4) .

In IV quadrant *x* coordinate is positive and *y* coordinate is negative, the point is (3, -2) .

Answer 4CU.

Consider,

E



Step 1: Begin at point *E*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -2.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is -5.

Step 4: So, the ordered pair for point *E* is $(-2,-5)$. This can also be written as $E(-2,-5)$.

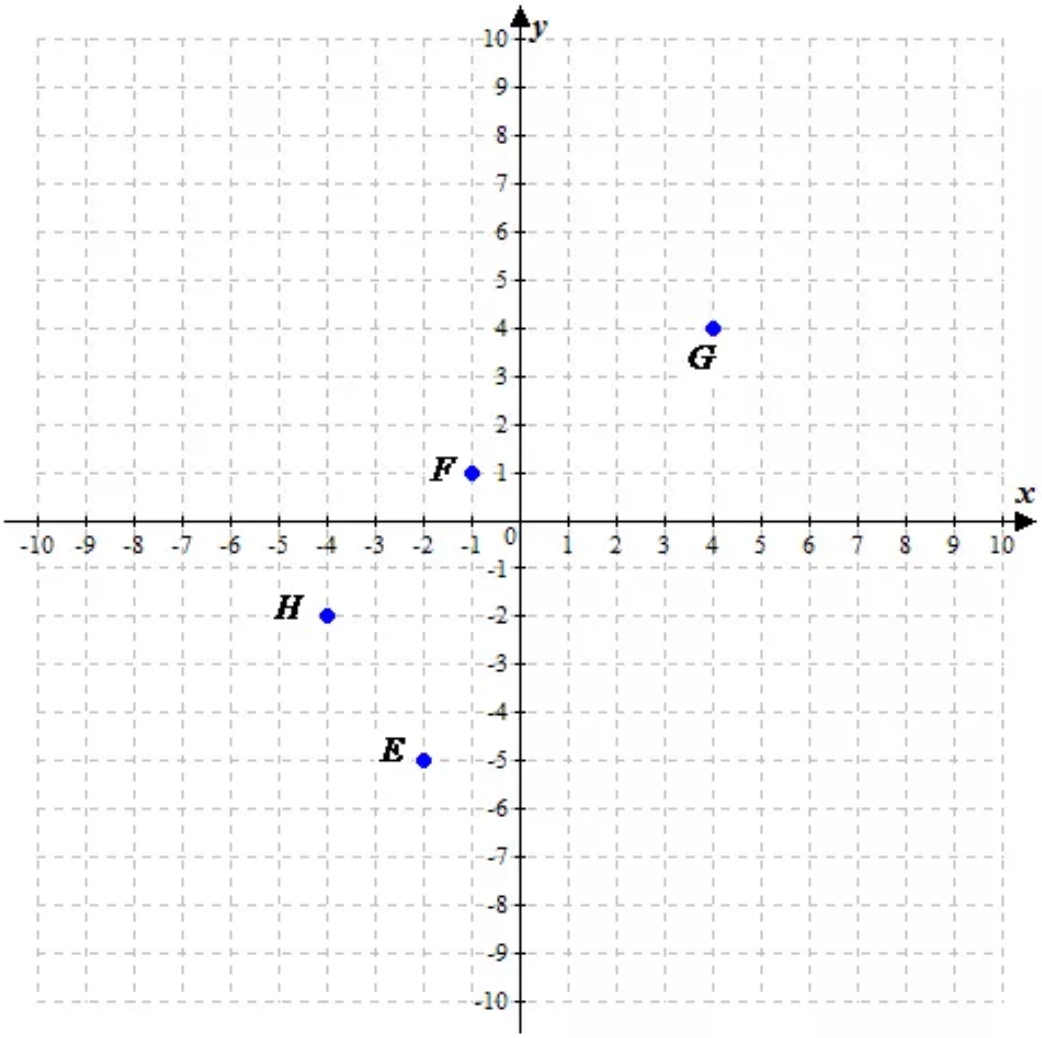
Since both *x* and *y*-coordinates are negative, the point *E* is in III quadrant.

Therefore, the ordered pair is $\boxed{E(-2,-5)}$ and the point is located in the $\boxed{III \text{ quadrant}}$.

Answer 5CU.

Consider,

F



Step 1: Begin at point *F*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -1.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 1.

Step 4: So, the ordered pair for point *F* is $(-1,1)$. This can also be written as $F(-1,1)$.

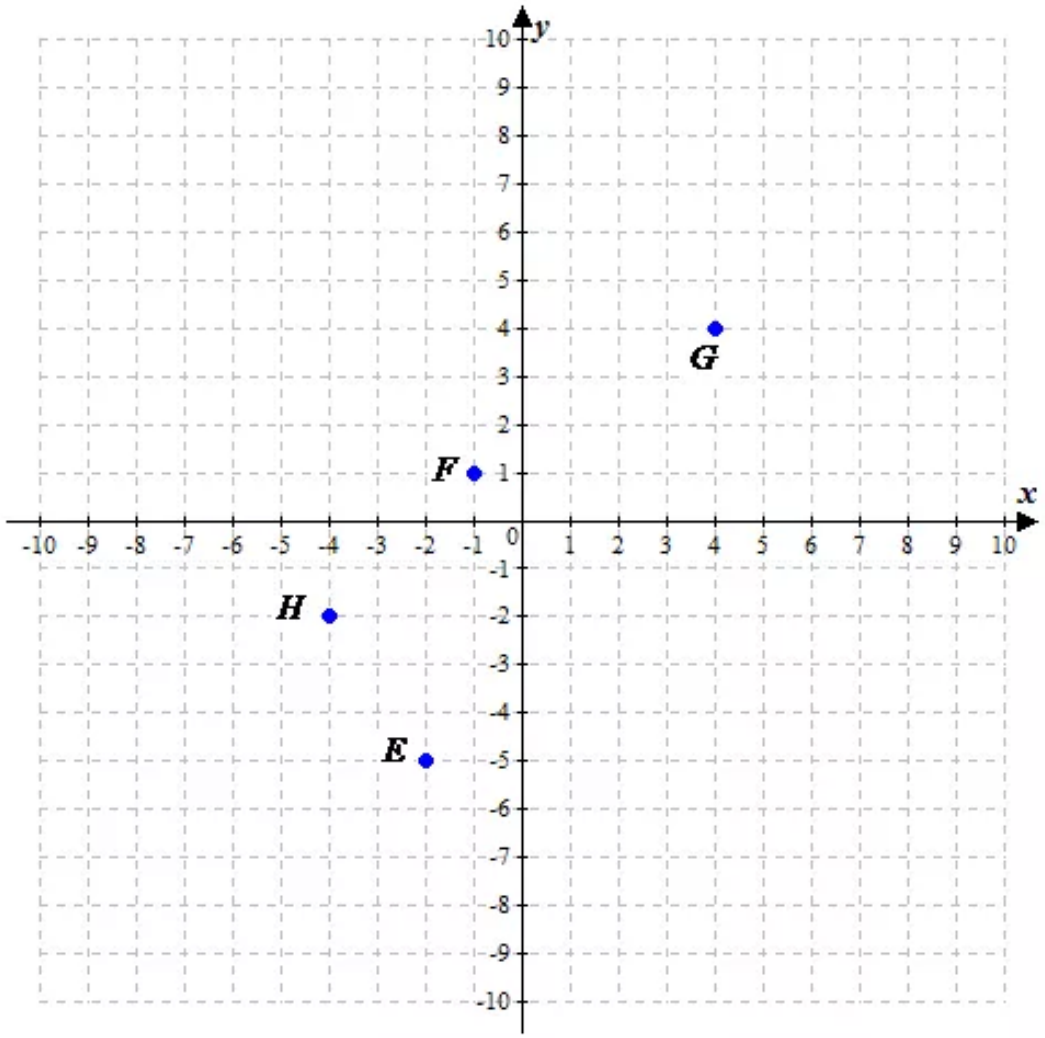
Since *x*-coordinate is negative and *y*-coordinate is positive, the point *F* is in II quadrant.

Therefore, the ordered pair is $\boxed{F(-1,1)}$ and the point is located in the $\boxed{II \text{ quadrant}}$.

Answer 6CU.

Consider,

G



Step 1: Begin at point *G*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is 4.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 4.

Step 4: So, the ordered pair for point *G* is $(4,4)$. This can also be written as $G(4,4)$.

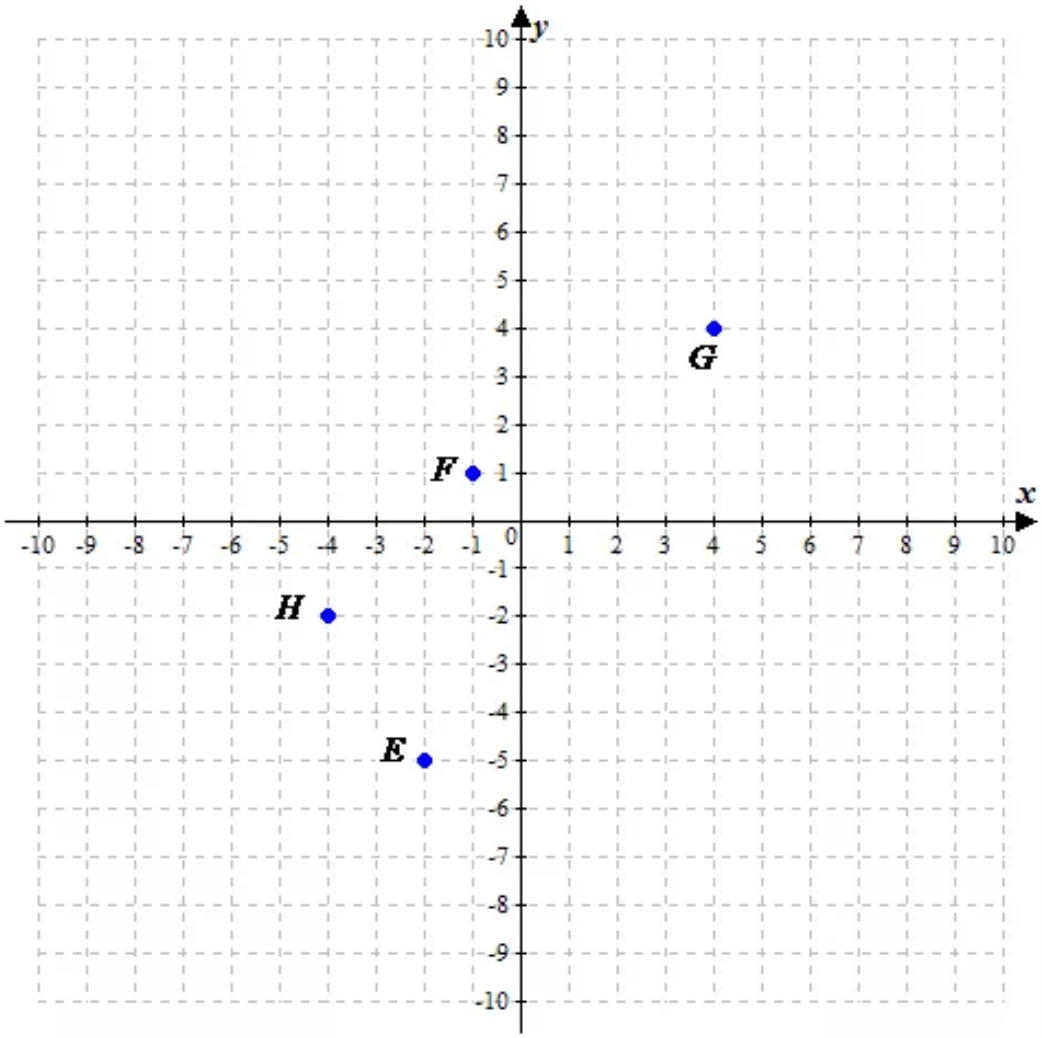
Since *x* and *y*-coordinates are positive, the point *G* is in I quadrant.

Therefore, the ordered pair is $\boxed{G(4,4)}$ and the point is located in the $\boxed{I \text{ quadrant}}$.

Answer 7CU.

Consider,

H



Step 1: Begin at point *H*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -4.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is -2.

Step 4: So, the ordered pair for point *H* is $(-4,-2)$. This can also be written as $H(-4,-2)$.

Since both *x* and *y*-coordinates are negative, the point *H* is in III quadrant.

Therefore, the ordered pair is $\boxed{H(-4,-2)}$ and the point is located in the $\boxed{III \text{ quadrant}}$.

Answer 8CU.

Consider,

$J(2,5)$

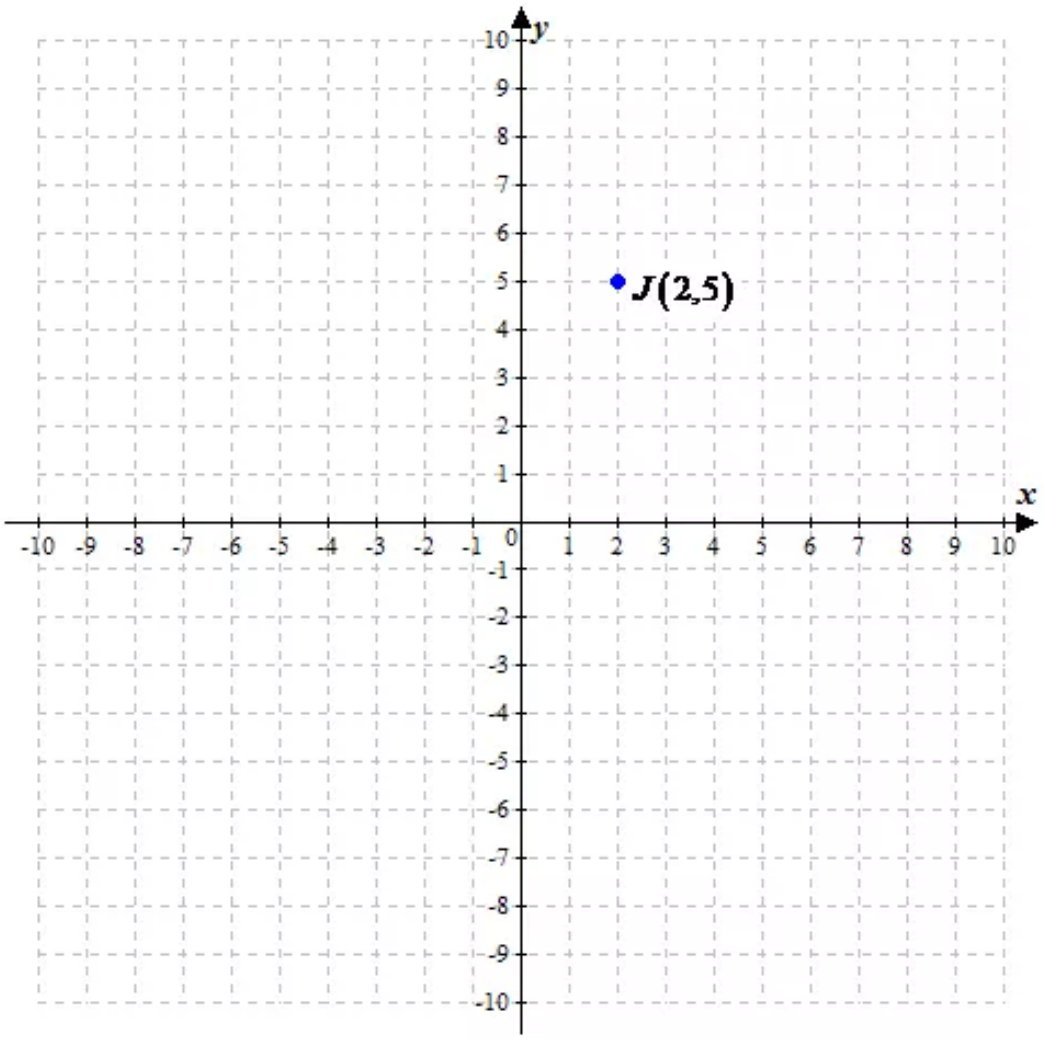
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move right 2 units since the *x*-coordinate is 2.

Step 3: Move up 5 units since the *y*-coordinate is 5.

Step 4: Draw a dot and label it *J*.



Answer 9CU.

Consider,

$K(-1,4)$

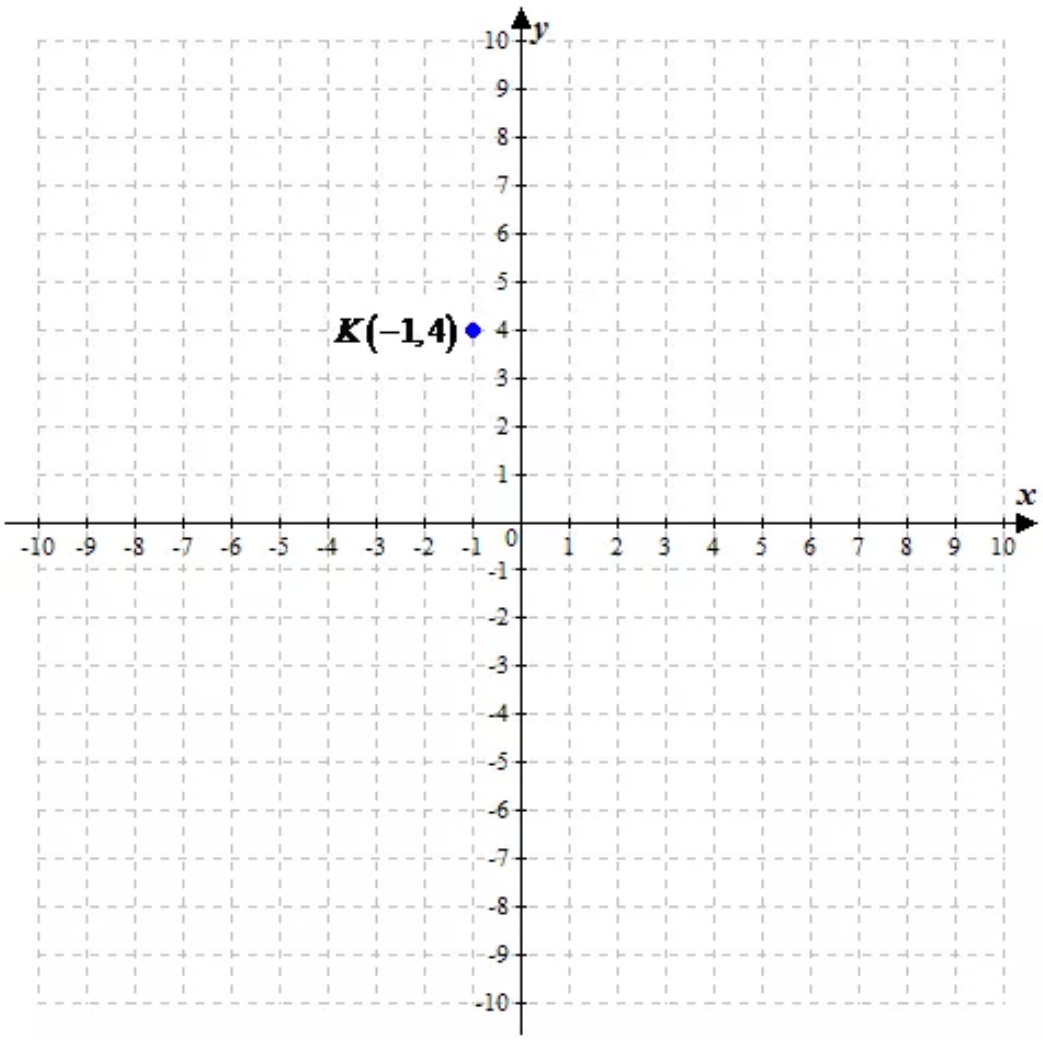
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 1 unit since the *x*-coordinate is -1.

Step 3: Move up 4 units since the *y*-coordinate is 4.

Step 4: Draw a dot and label it *K*.



Answer 10CU.

Consider,

$L(0,-3)$

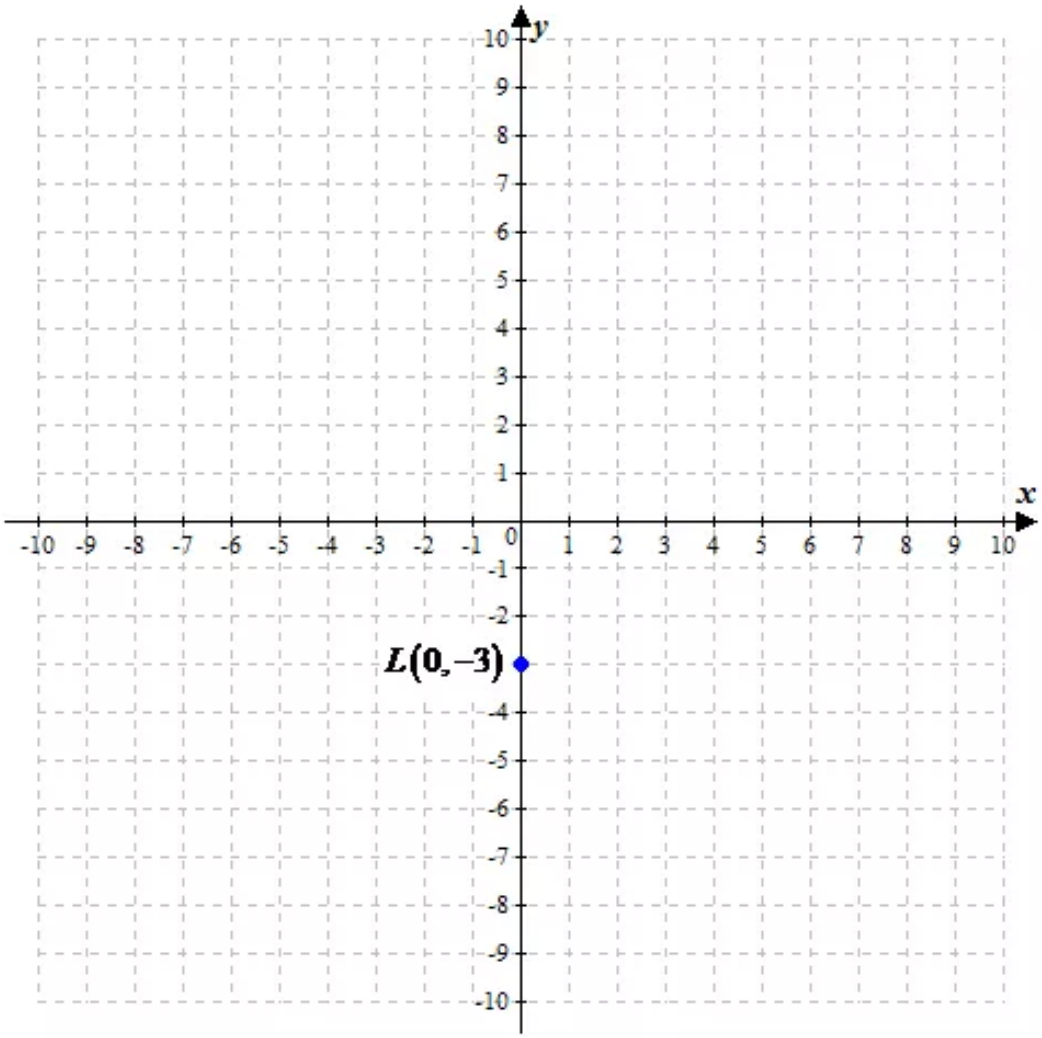
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Since the *x*-coordinate is 0, the point will be located on the *y*-axis.

Step 3: Move down 3 units since the *y*-coordinate is -3.

Step 4: Draw a dot and label it *L*.



Answer 11CU.

Consider,

$M(-2,-2)$

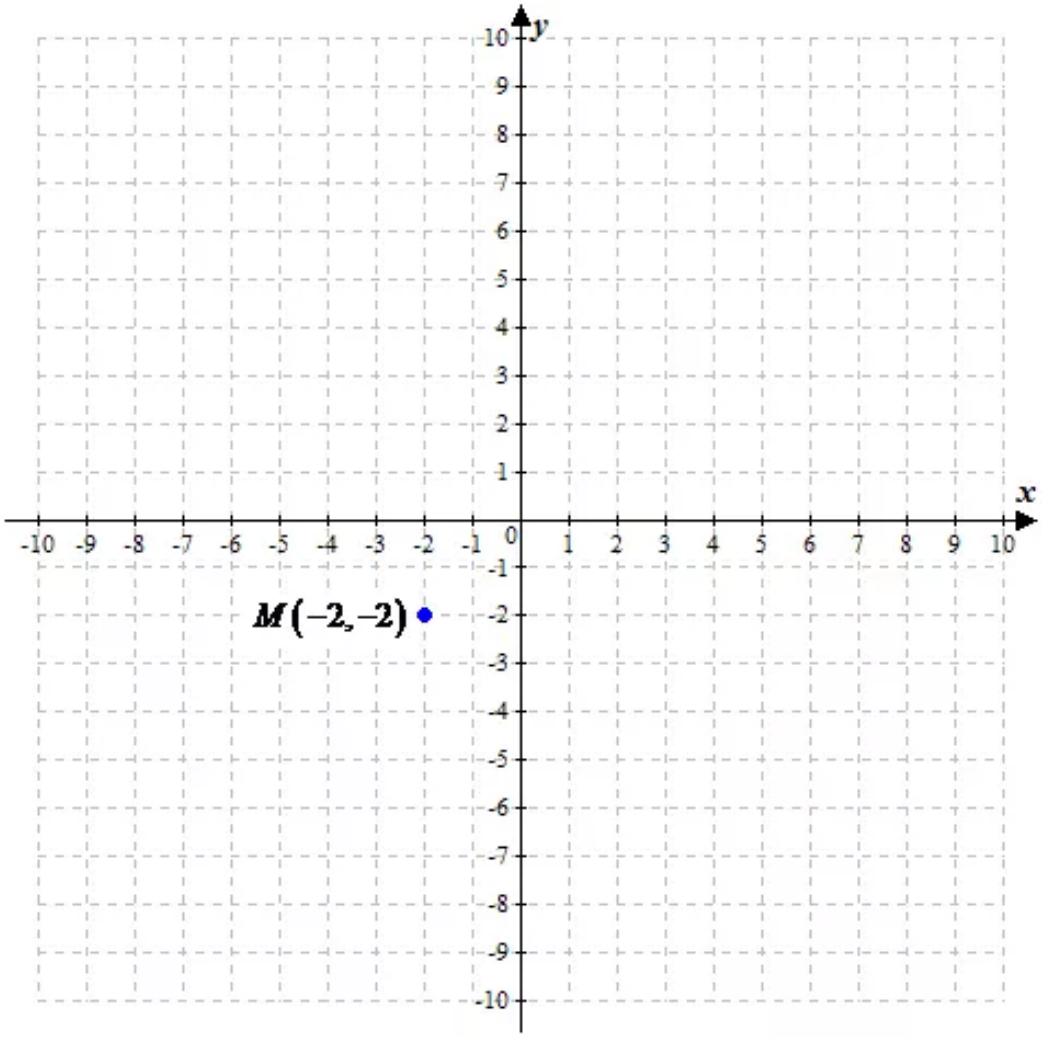
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 2 units since the *x*-coordinate is -2.

Step 3: Move down 2 units since the *y*-coordinate is -2.

Step 4: Draw a dot and label it *M*.



Answer 12CU.

Consider,

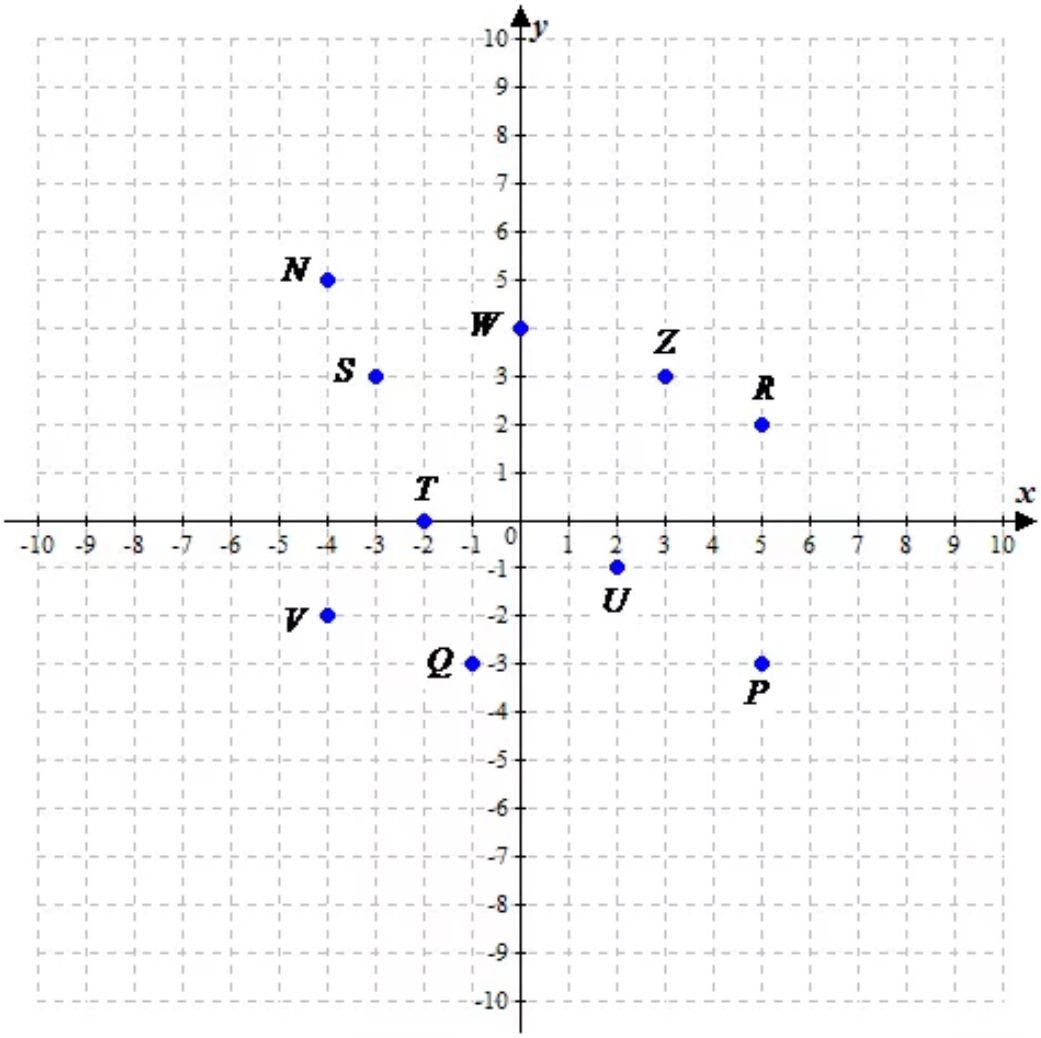
Chun Wei has sketched the southern view of a building. If *A* is located on a coordinate system at $(-40,10)$, locate the coordinate of the other vertices .

From the figure the distance of *AB* is 40ft, *BC* is 10ft, *CD* is 20ft, *AE* is 30 ft.

Since the coordinates of *A* are $(-40,10)$, then the coordinates of *B* is $(0,10)$, *C* is $(0,20)$ *D* is $(-20,20)$ and *E* is $(-40,40)$.

Answer 13PA.

Consider,



Write the ordered pair for point *N*.

Step 1: Begin at point *N*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -4.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 5.

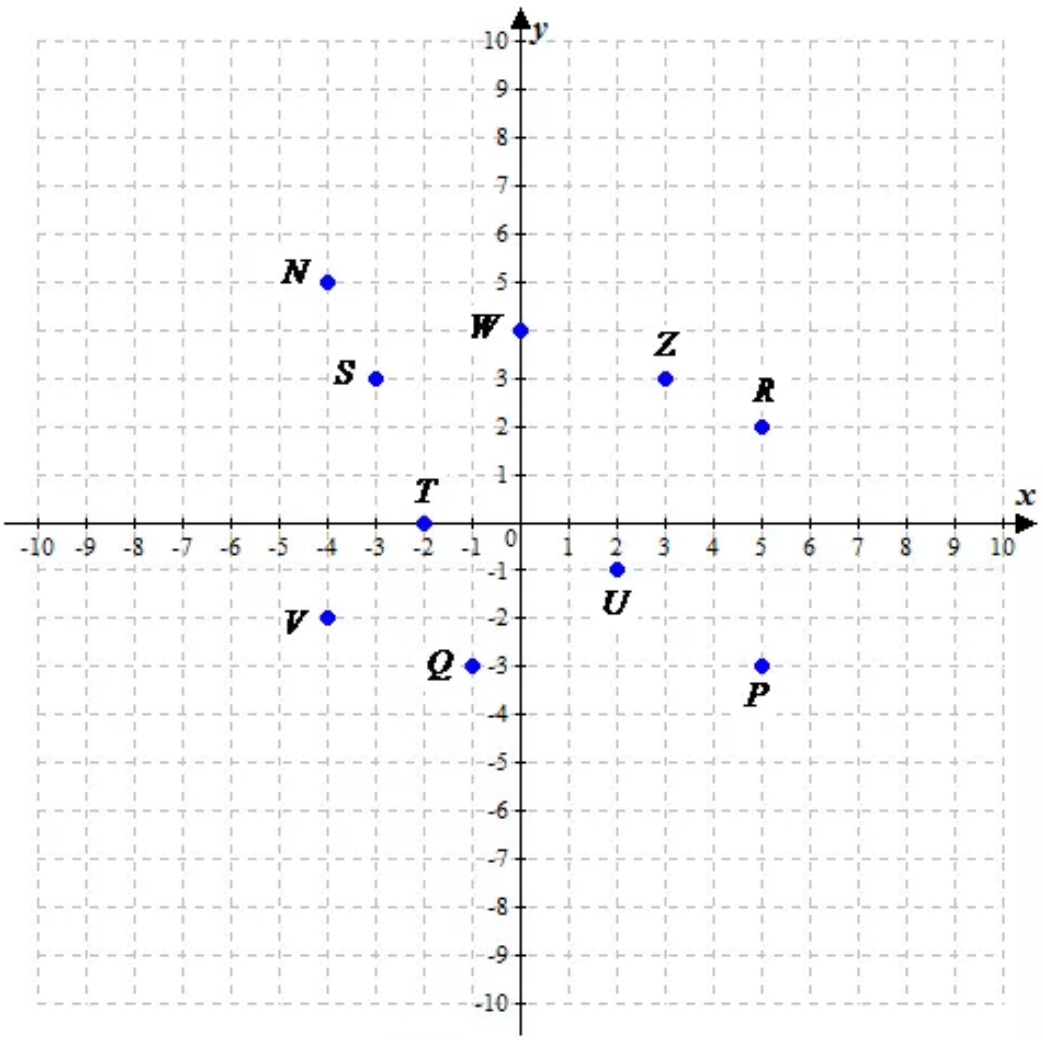
Step 4: So, the ordered pair for point *N* is $(-4,5)$. This can also be written as $N(-4,5)$.

Since *x*-coordinate is negative and *y*-coordinate is positive, the point *N* is in II quadrant.

Therefore, the ordered pair is $\boxed{N(-4,5)}$ and the point is located in the $\boxed{\text{Quadrant II}}$.

Answer 14PA.

Consider,



Write the ordered pair for point *P*.

Step 1: Begin at point *P*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is 5.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is -3.

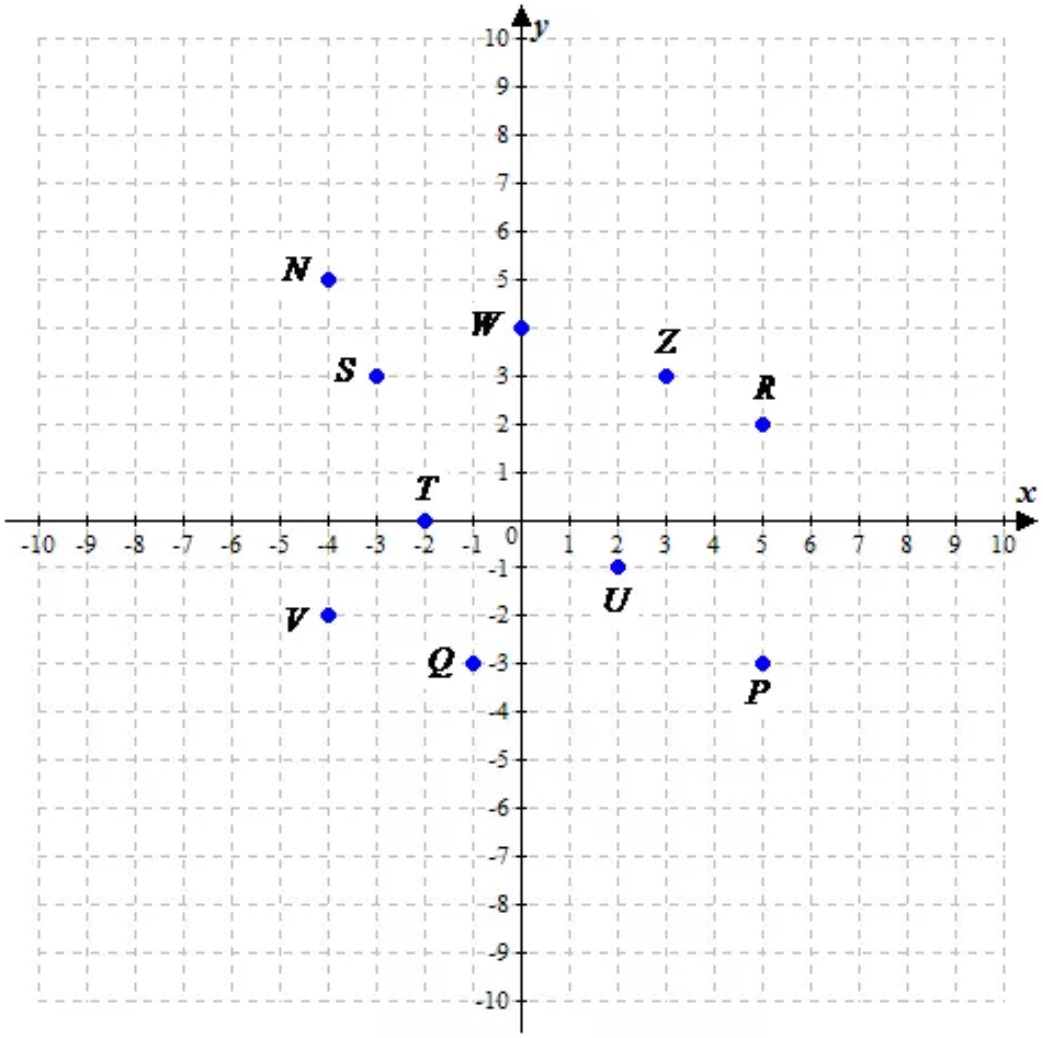
Step 4: So, the ordered pair for point *P* is $(5,-3)$. This can also be written as $P(5,-3)$.

Since *x*-coordinate is positive and *y*-coordinate is negative, the point *P* is in IV quadrant.

Therefore, the ordered pair is $\boxed{P(5,-3)}$ and the point is located in the $\boxed{\text{Quadrant IV}}$.

Answer 15PA.

Consider,



Write the ordered pair for point *Q*.

Step 1: Begin at point *Q*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -1.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is -3.

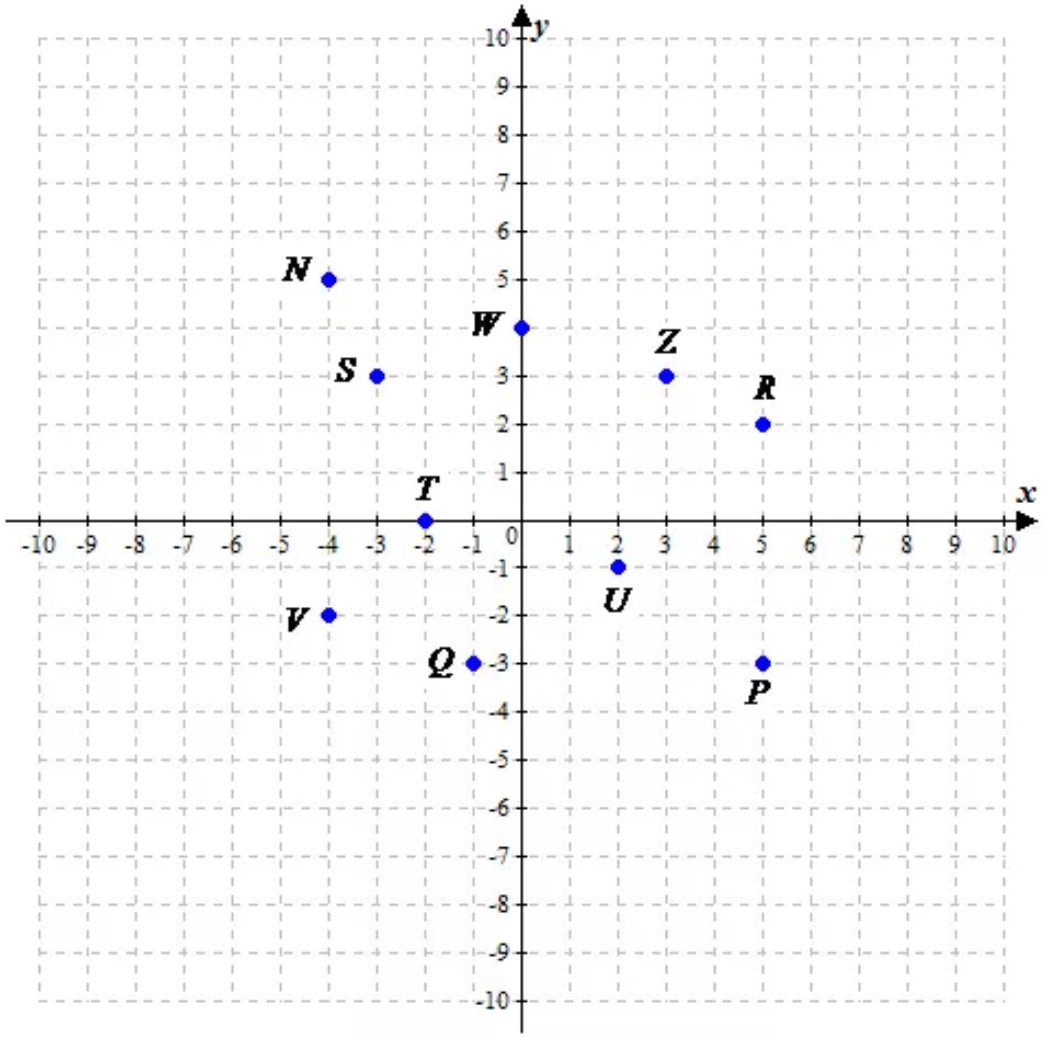
Step 4: So, the ordered pair for point *Q* is $(-1,-3)$. This can also be written as $Q(-1,-3)$.

Since both *x* and *y*-coordinates are negative, the point *Q* is in III quadrant.

Therefore, the ordered pair is $\boxed{Q(-1,-3)}$ and the point is located in the $\boxed{\text{Quadrant III}}$.

Answer 16PA.

Consider,



Write the ordered pair for point *R*.

Step 1: Begin at point *R*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is 5.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 2.

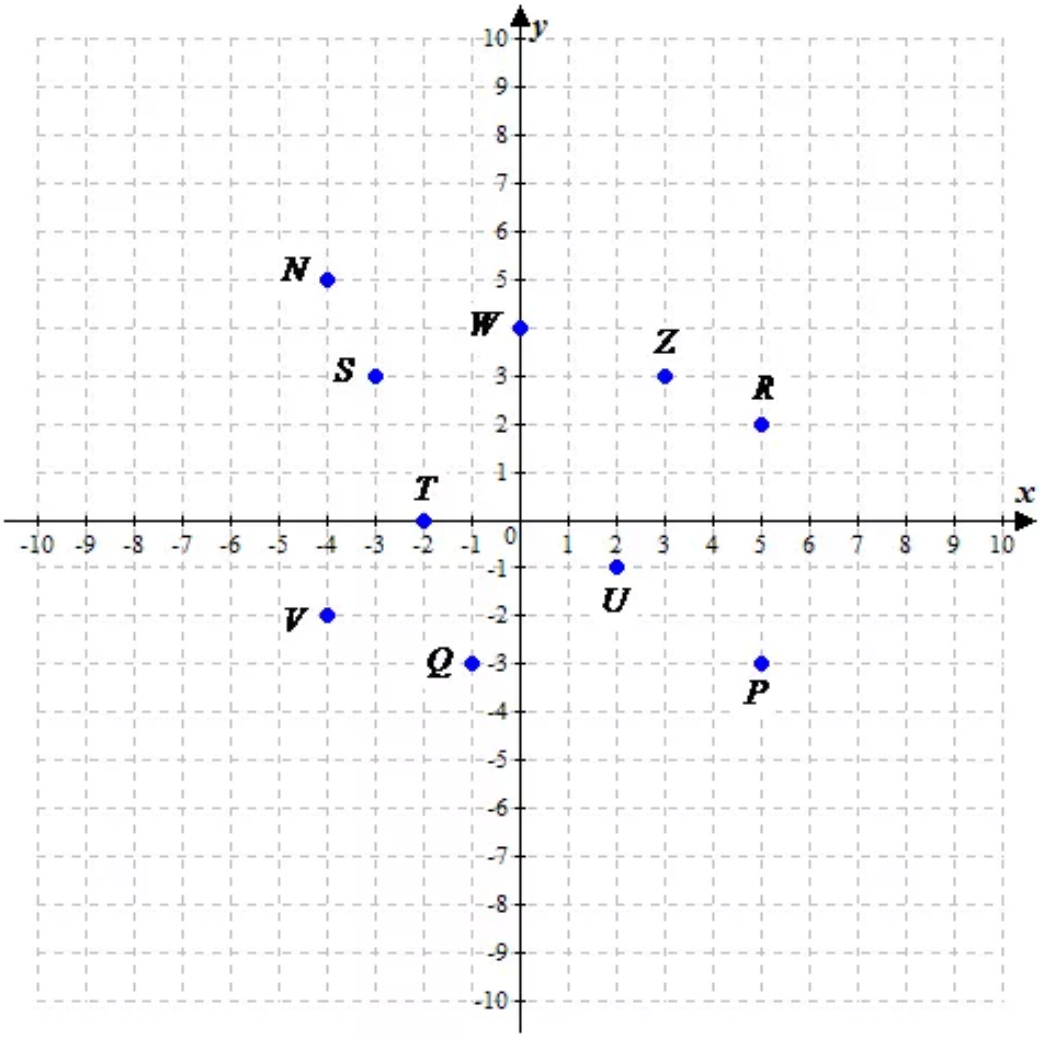
Step 4: So, the ordered pair for point *R* is $(5,2)$. This can also be written as $R(5,2)$.

Since both *x* and *y*-coordinates are positive, the point *R* is in I quadrant.

Therefore, the ordered pair is $\boxed{R(5,2)}$ and the point is located in the $\boxed{\text{Quadrant I}}$.

Answer 17PA.

Consider,



Write the ordered pair for point *S*.

Step 1: Begin at point *S*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -3.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 3.

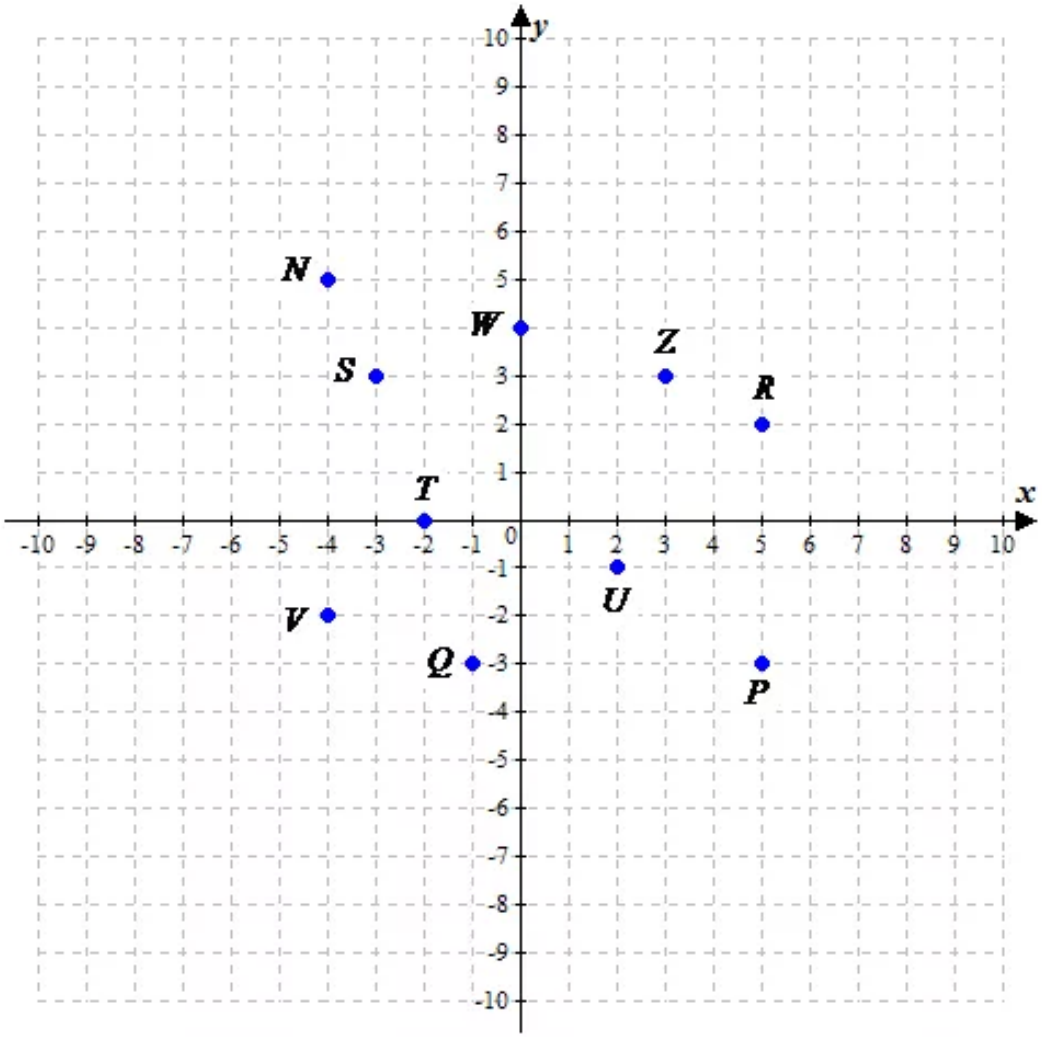
Step 4: So, the ordered pair for point *S* is $(-3,3)$. This can also be written as $S(-3,3)$.

Since *x*-coordinate is negative and *y*-coordinate is positive, the point *S* is in II quadrant.

Therefore, the ordered pair is $\boxed{S(-3,3)}$ and the point is located in the $\boxed{\text{Quadrant II}}$.

Answer 18PA.

Consider,



Write the ordered pair for point *T*.

Step 1: Begin at point *T*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -2.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 0.

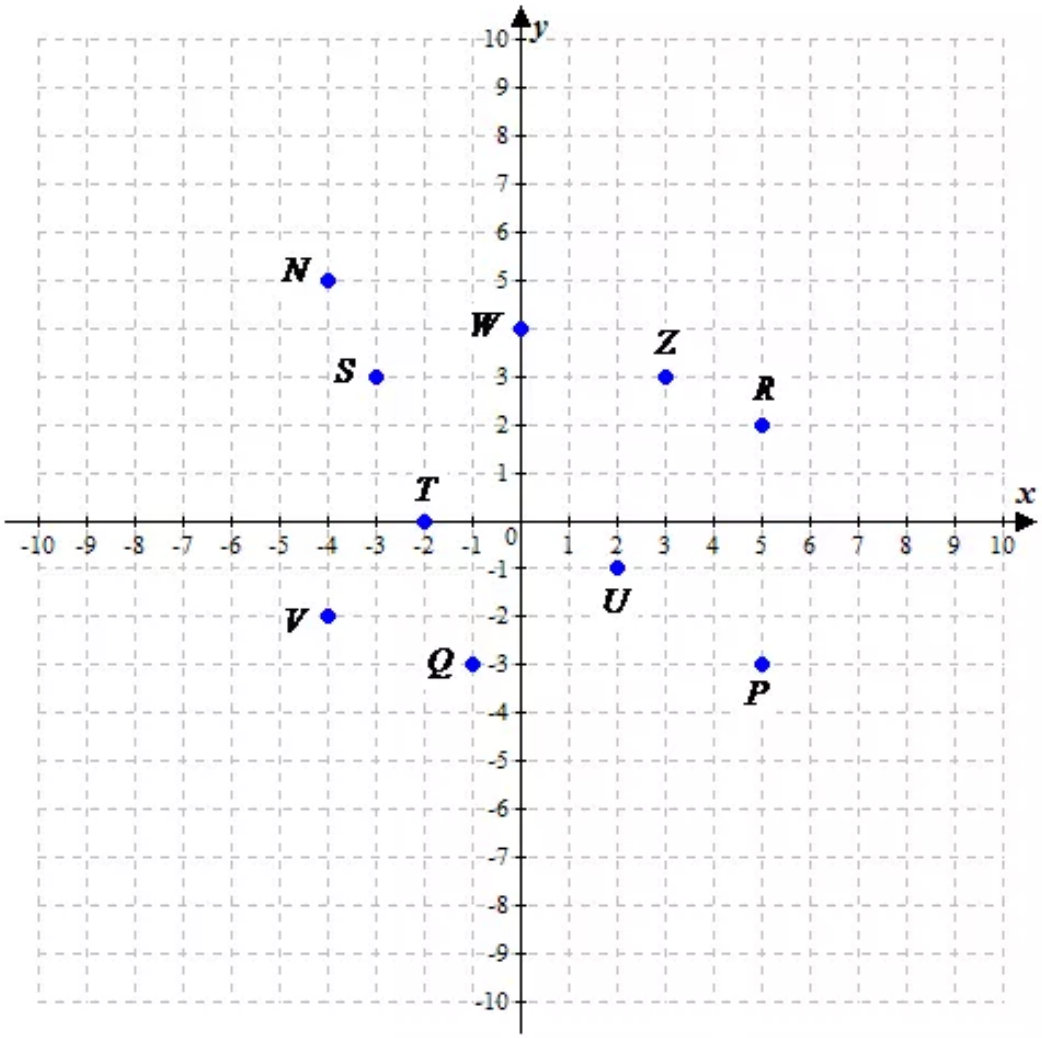
Step 4: So, the ordered pair for point *T* is $(-2,0)$. This can also be written as $T(-2,0)$.

Since *x*-coordinate is negative and *y*-coordinate is zero, the point *T* is in II quadrant.

Therefore, the ordered pair is $\boxed{T(-2,0)}$ and the point is located in the $\boxed{\text{Quadrant II}}$.

Answer 19PA.

Consider,



Write the ordered pair for point *U*.

Step 1: Begin at point *U*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is 2.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is -1.

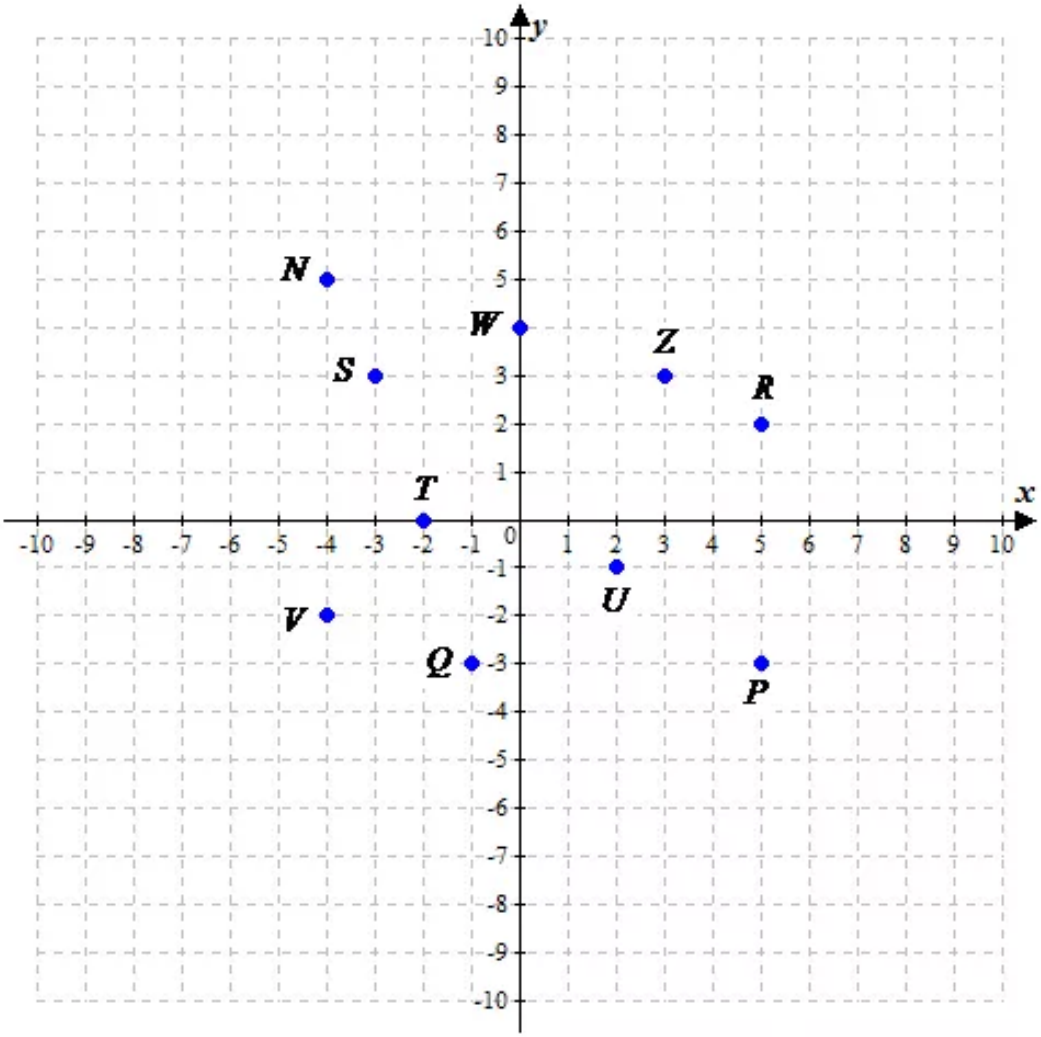
Step 4: So, the ordered pair for point *U* is $(2,-1)$. This can also be written as $U(2,-1)$.

Since *x*-coordinate is positive and *y*-coordinate is negative, the point *U* is in IV quadrant.

Therefore, the ordered pair is $\boxed{U(2,-1)}$ and the point is located in the $\boxed{\text{Quadrant IV}}$.

Answer 20PA.

Consider,



Write the ordered pair for point *V*.

Step 1: Begin at point *V*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is -4.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is -2.

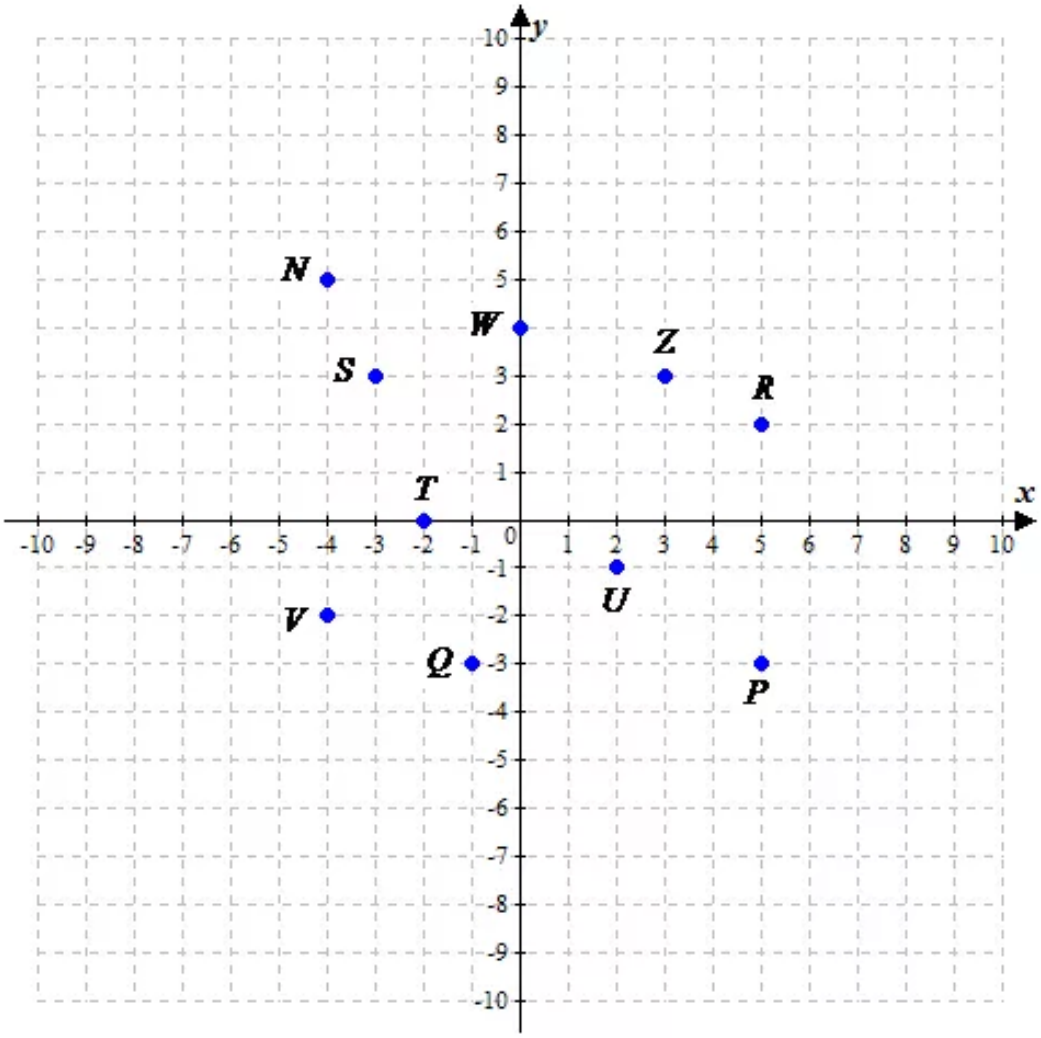
Step 4: So, the ordered pair for point *V* is $(-4,-2)$. This can also be written as $V(-4,-2)$.

Since both *x* and *y*-coordinates are negative, the point *V* is in III quadrant.

Therefore, the ordered pair is $\boxed{V(-4,-2)}$ and the point is located in the $\boxed{\text{Quadrant III}}$.

Answer 21PA.

Consider,



Write the ordered pair for point *W*.

Step 1: Begin at point *W*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is 0.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 4.

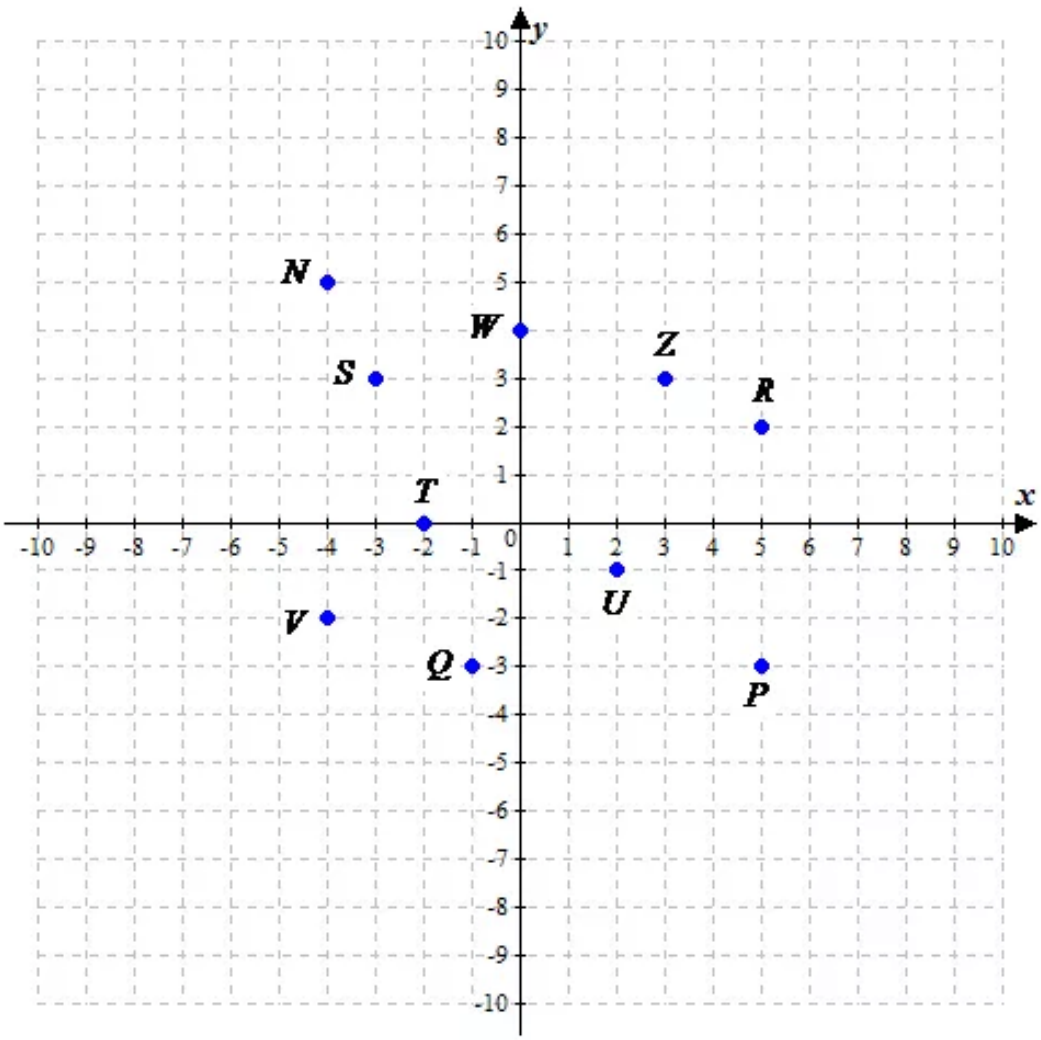
Step 4: So, the ordered pair for point *W* is $(0,4)$. This can also be written as $W(0,4)$.

Since both *x* and *y*-coordinates are positive, the point *W* is in I quadrant.

Therefore, the ordered pair is $\boxed{W(0,4)}$ and the point is located in the $\boxed{\text{Quadrant I}}$.

Answer 22PA.

Consider,



Write the ordered pair for point *Z*.

Step 1: Begin at point *Z*.

Step 2: Follow along a vertical line through the point to find the *x*-coordinate on the *x*-axis. The *x*-coordinate is 3.

Step 3: Follow along a horizontal line through the point to find the *y*-coordinate on the *y*-axis. The *y*-coordinate is 3.

Step 4: So, the ordered pair for point *Z* is $(3,3)$. This can also be written as $Z(3,3)$.

Since both *x* and *y*-coordinates are positive, the point *Z* is in I quadrant.

Therefore, the ordered pair is $\boxed{Z(3,3)}$ and the point is located in the $\boxed{\text{Quadrant I}}$.

Answer 23PA.

Consider,

The ordered pair that describes a point 12 units down from and 7 units to the right of the origin

.

Step 1: Start at the origin.

Step 2: Move right 7 units, then the *x*-coordinate is 7.

Step 3: Move down 12 units, then the *y*-coordinate is 5.

Step 4: The ordered pair is $(7,12)$.

Therefore the ordered pair is $\boxed{(7,12)}$.

Answer 24PA.

Consider,

The ordered pair for a point that is 9 units to the left of the origin and lies on the *x*-axis .

Step 1: Start at the origin.

Step 2: Move left 9 units, then the *x*-coordinate is -9.

Step 3: Since the point lies on *x*-axis, then the *y*-coordinate is 0.

Step 4: The ordered pair is $(-9,0)$.

Therefore the ordered pair is $\boxed{(-9,0)}$.

Answer 25PA.

Consider,

$A(3,5)$

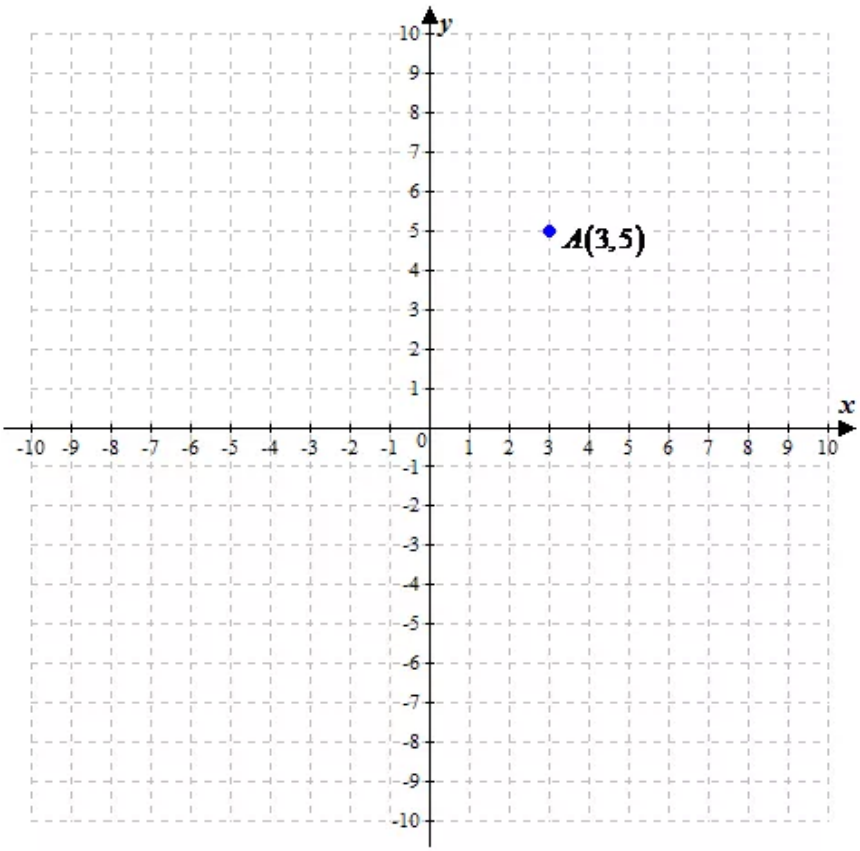
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move right 3 units since the *x*-coordinate is 3.

Step 3: Move up 5 units since the *y*-coordinate is 5.

Step 4: Draw a dot and label it *A*.



Answer 26PA.

Consider,

$B(-2,2)$

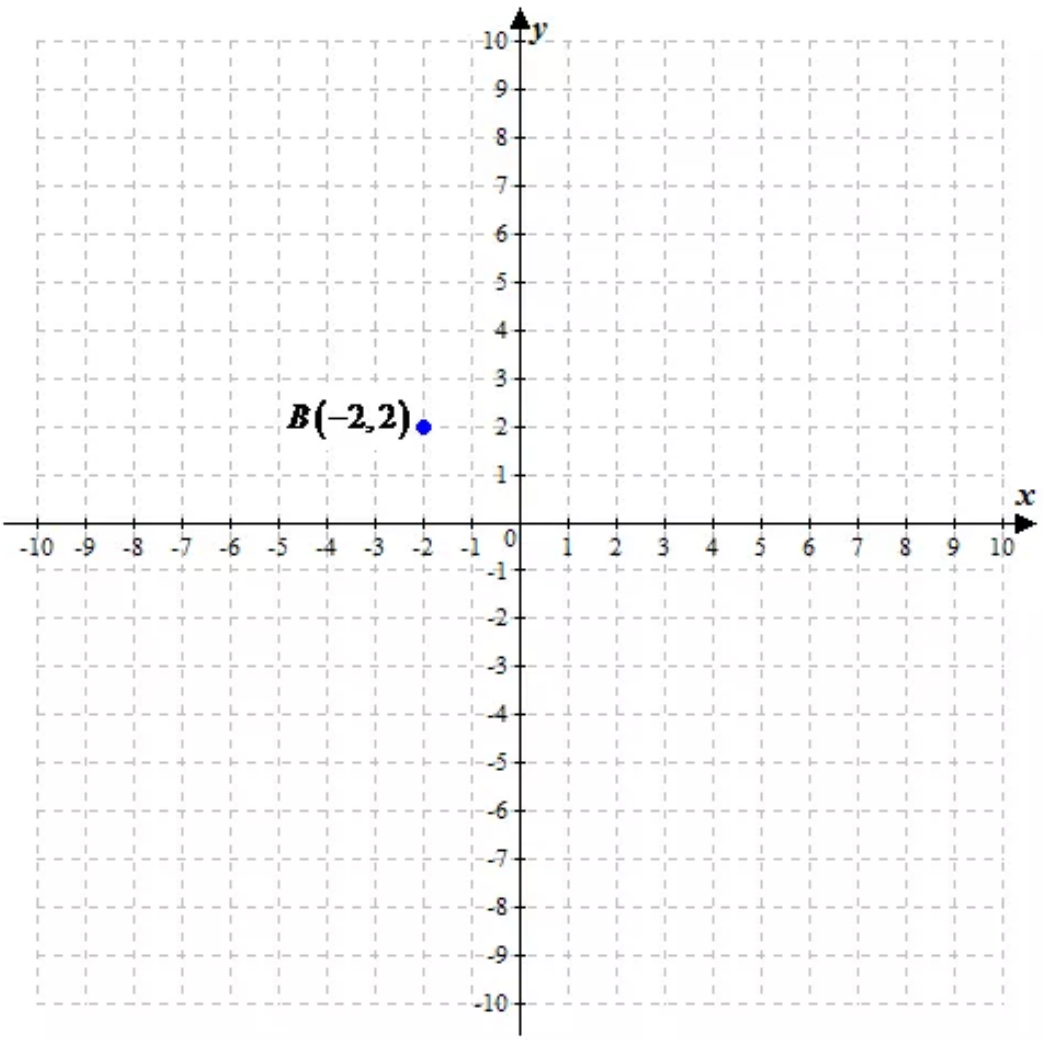
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 2 units since the *x*-coordinate is -2.

Step 3: Move up 2 units since the *y*-coordinate is 2.

Step 4: Draw a dot and label it *B*.



Answer 27PA.

Consider,

$C(4,-2)$

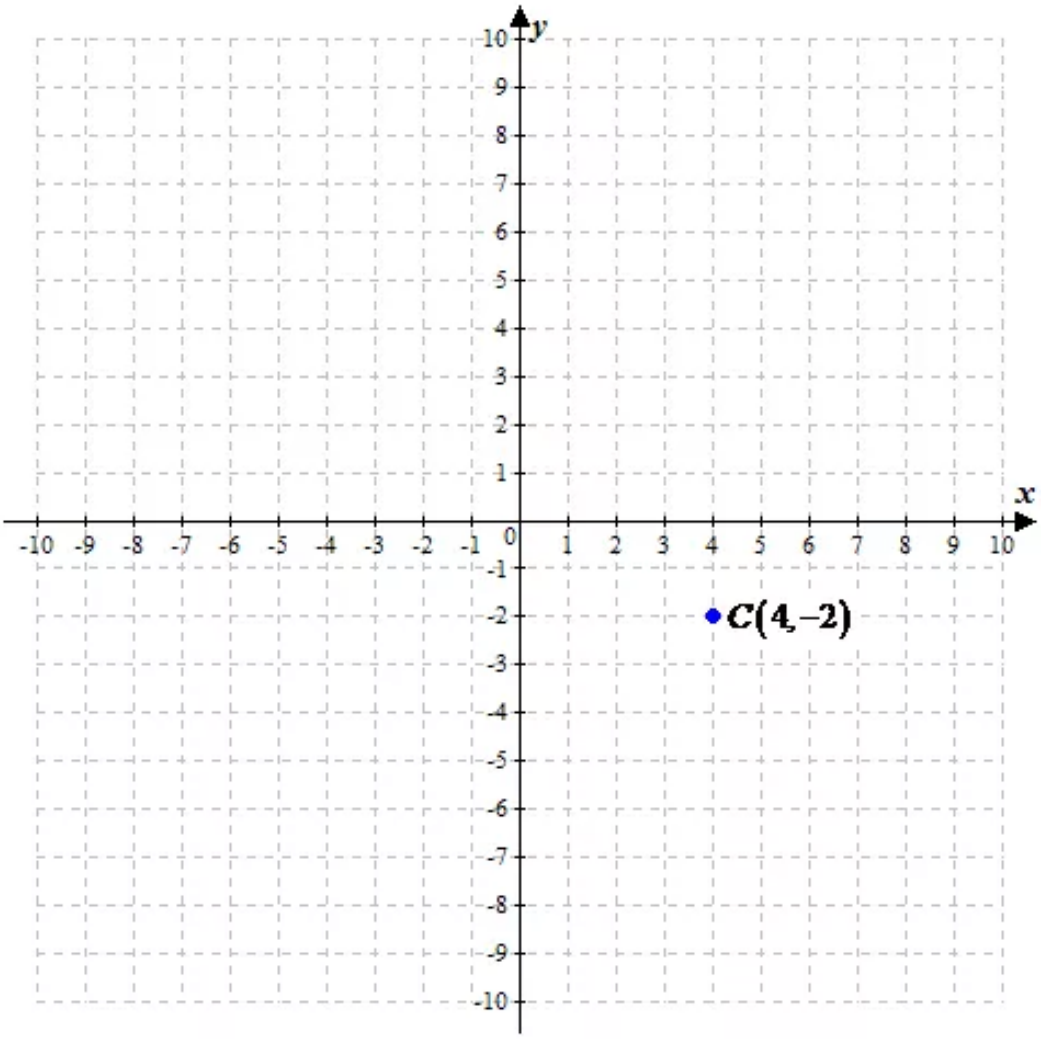
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move right 4 units since the *x*-coordinate is 4.

Step 3: Move down 2 units since the *y*-coordinate is -2.

Step 4: Draw a dot and label it *C*.



Answer 28PA.

Consider,

$D(0,-1)$

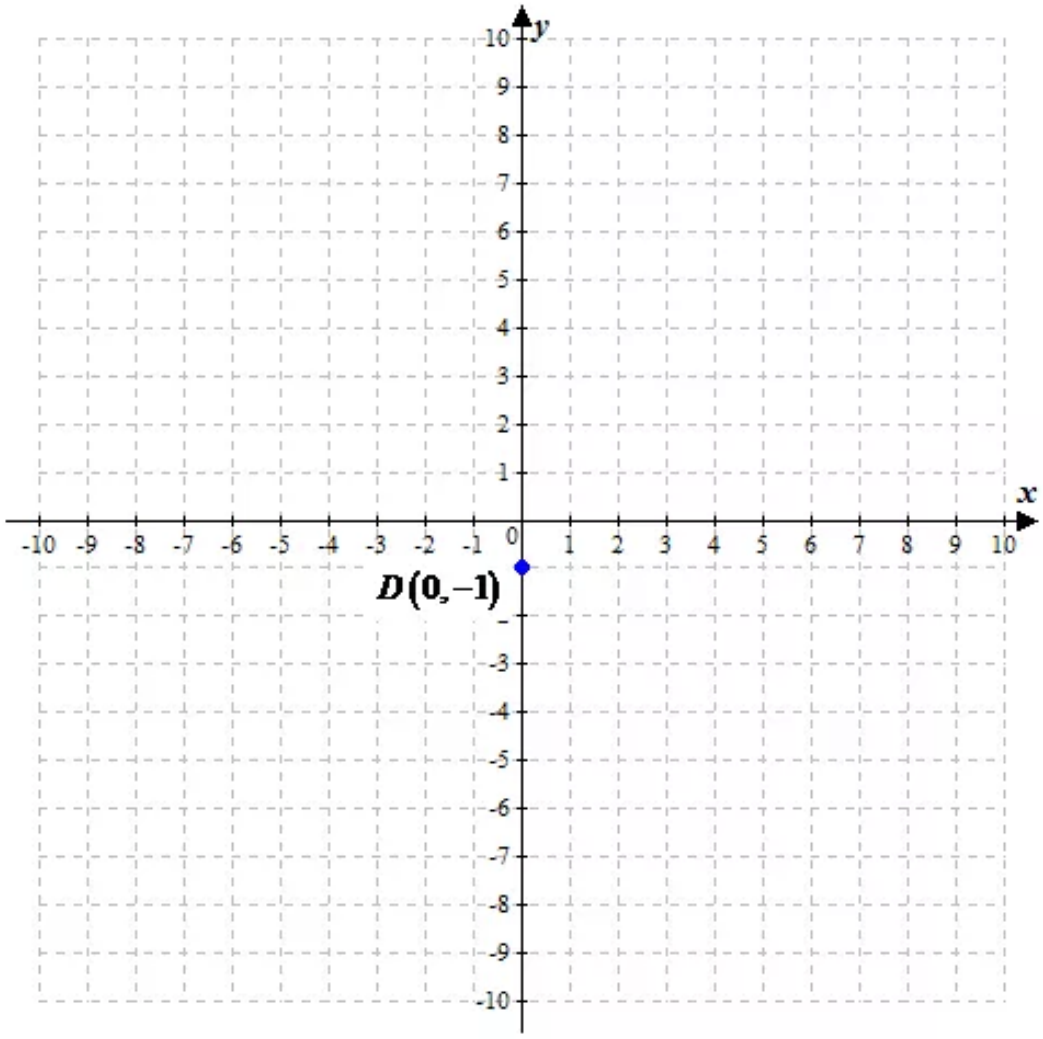
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Since the *x*-coordinate is 0, the point will be located on the *y*-axis.

Step 3: Move down 1 unit since the *y*-coordinate is -1.

Step 4: Draw a dot and label it *D*.



Answer 29PA.

Consider,

$E(-2,5)$

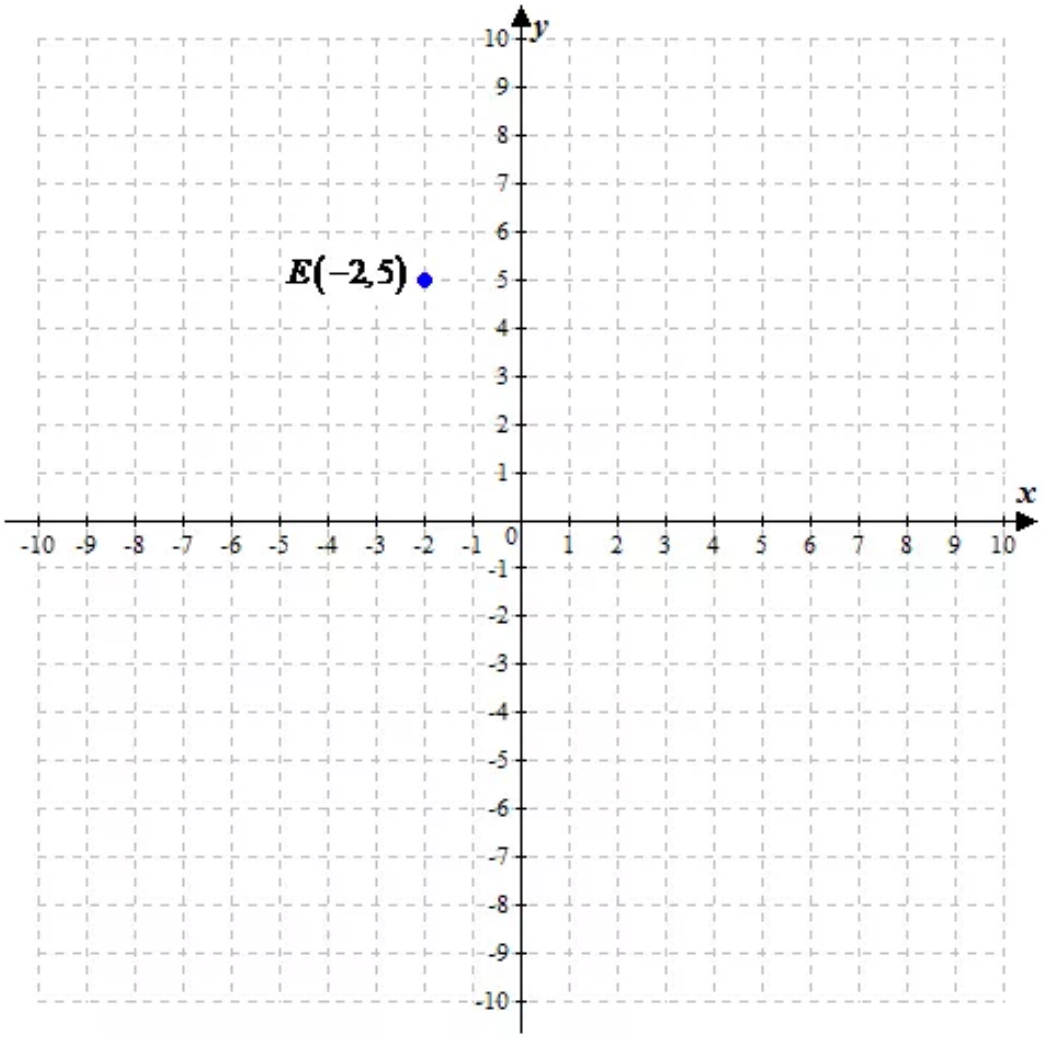
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 2 units since the *x*-coordinate is -2.

Step 3: Move up 5 units since the *y*-coordinate is 5.

Step 4: Draw a dot and label it *E*.



Answer 30PA.

Consider,

$F(-3,-4)$

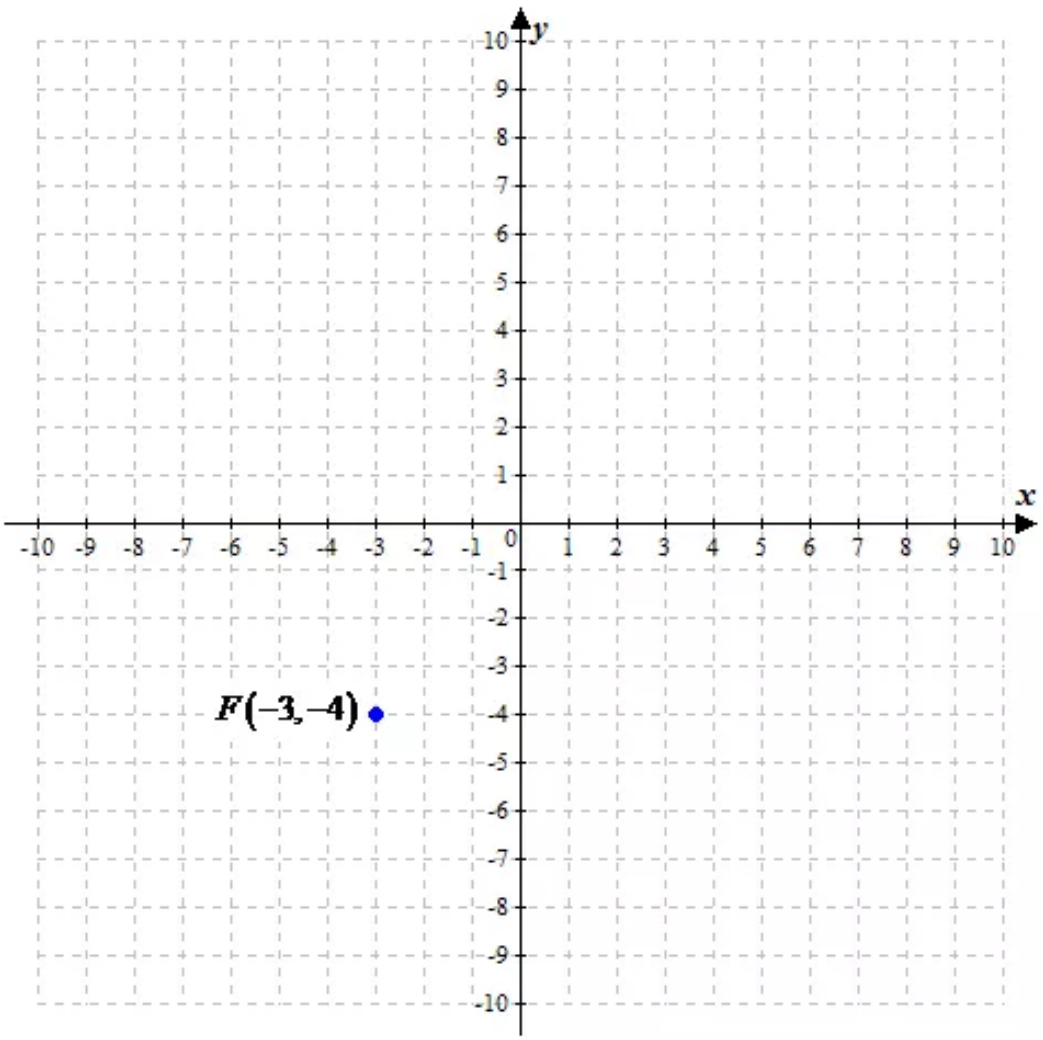
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 3 units since the *x*-coordinate is -3.

Step 3: Move down 4 units since the *y*-coordinate is -4.

Step 4: Draw a dot and label it *F*.



Answer 31PA.

Consider,

$G(4,4)$

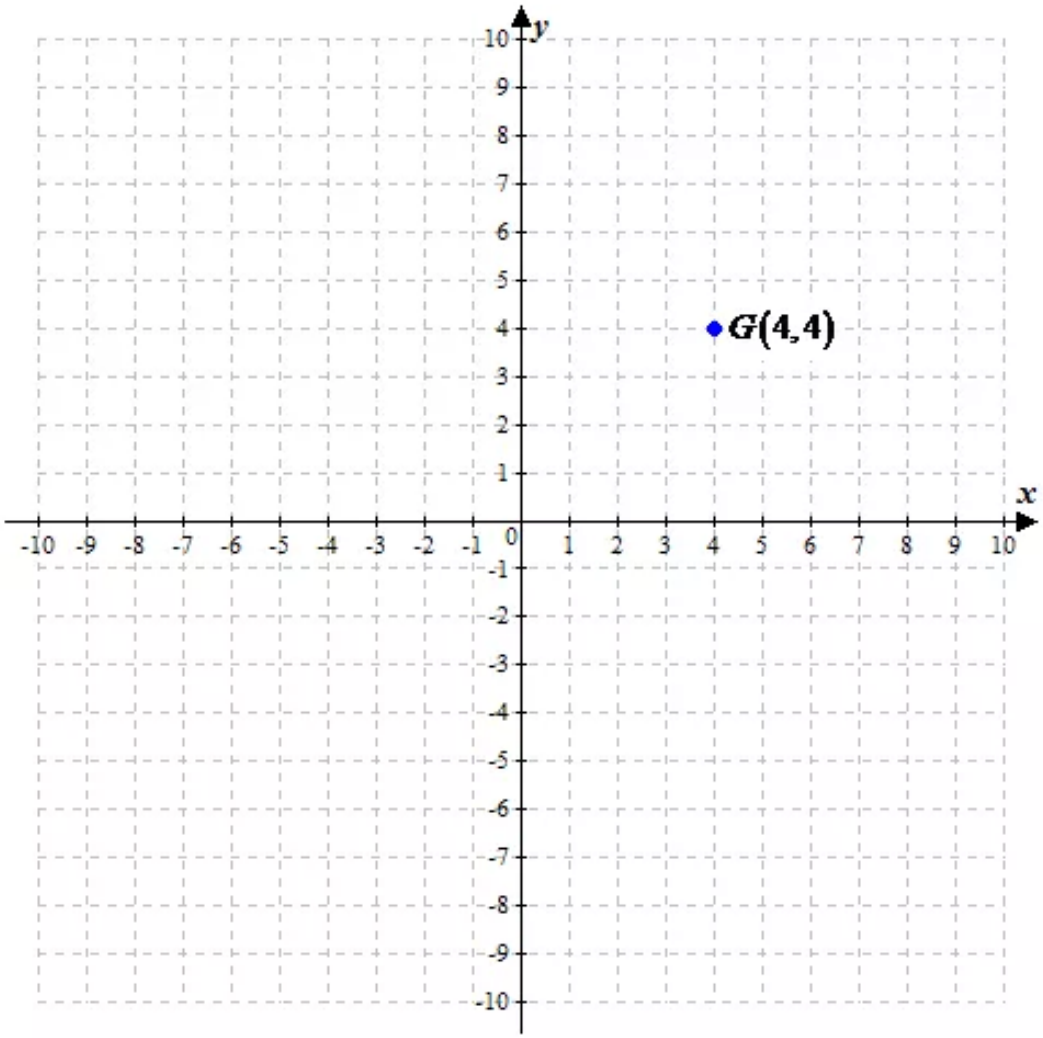
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move right 4 units since the *x*-coordinate is 4.

Step 3: Move up 4 units since the *y*-coordinate is 4.

Step 4: Draw a dot and label it *G*.



Answer 32PA.

Consider,

$H(-4,4)$

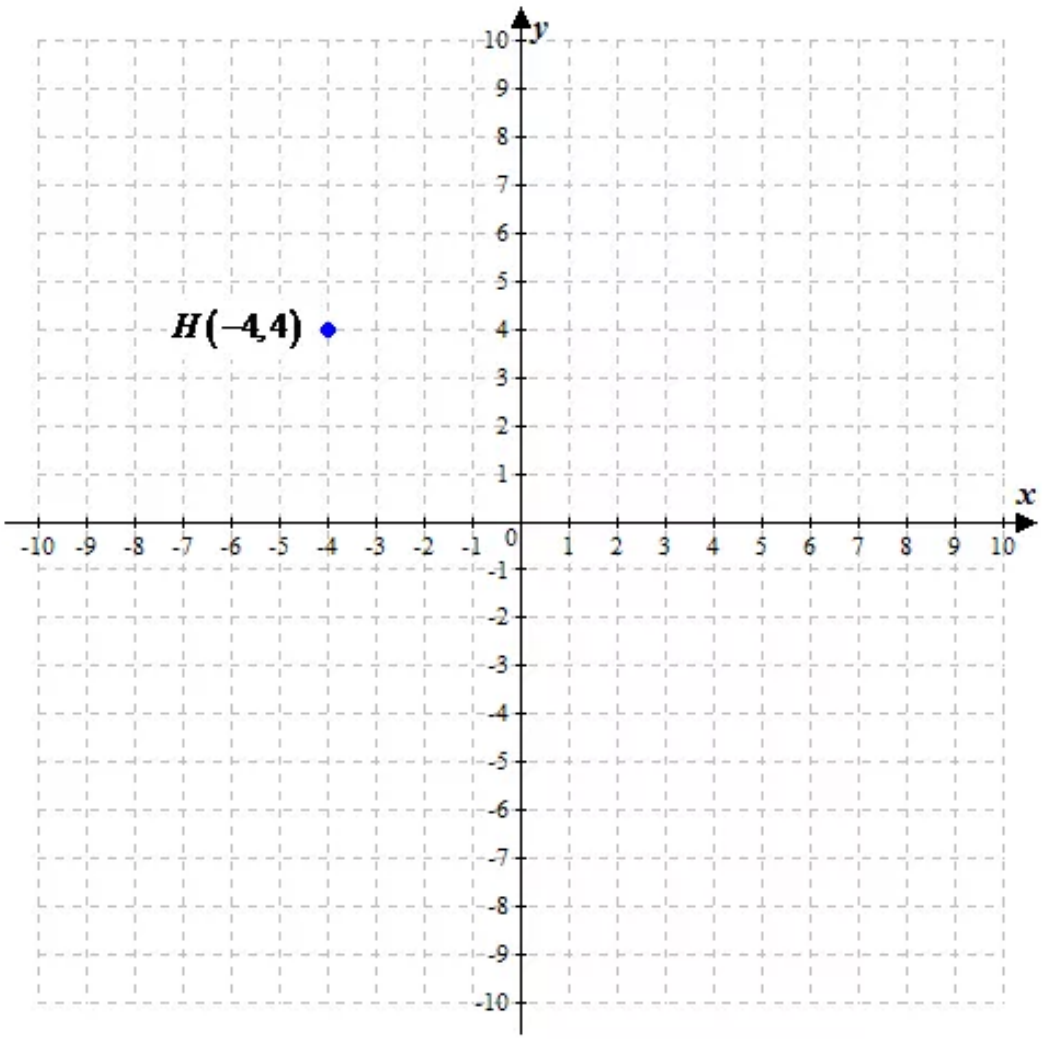
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 4 units since the *x*-coordinate is -4.

Step 3: Move up 4 units since the *y*-coordinate is 4.

Step 4: Draw a dot and label it *H*.



Answer 33PA.

Consider,

$I(3,1)$

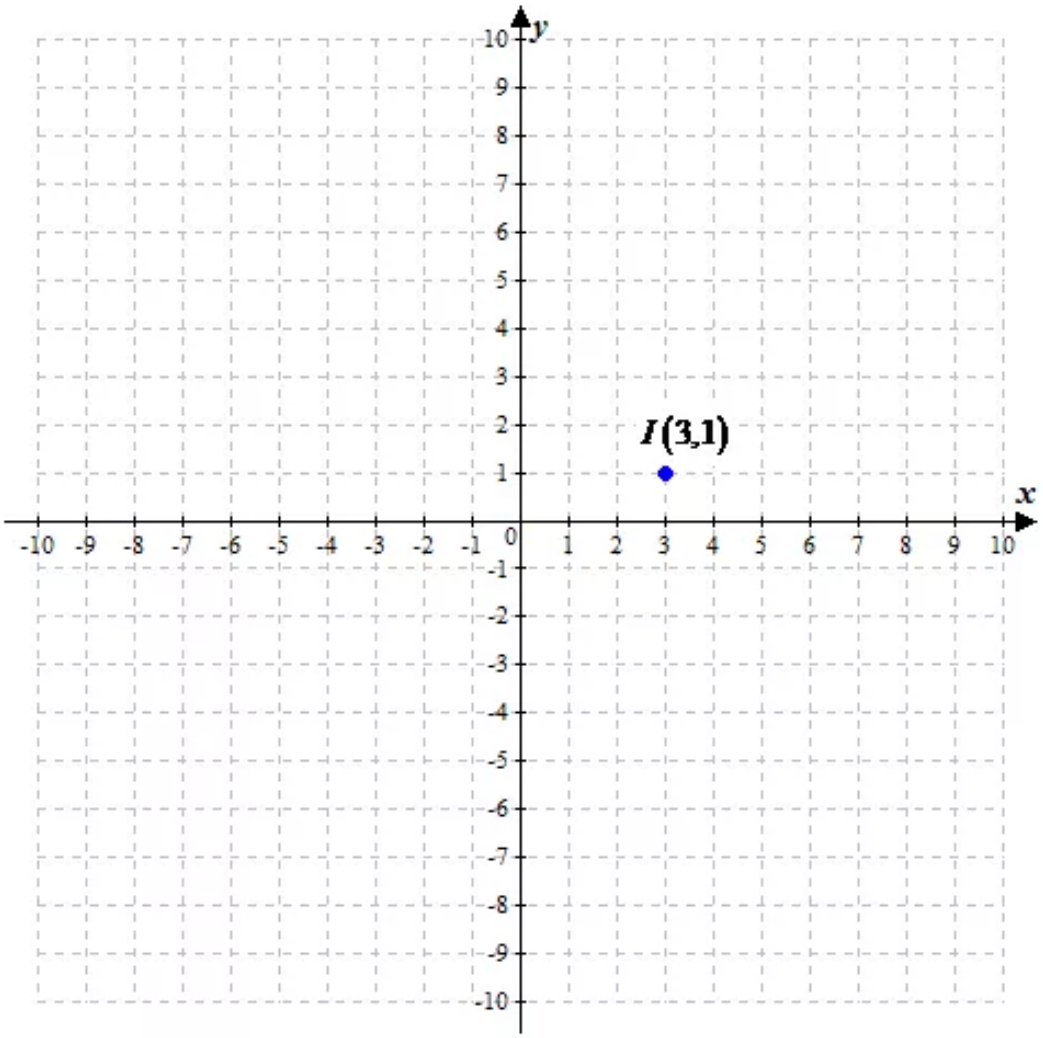
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move right 3 units since the *x*-coordinate is 3.

Step 3: Move up 1 unit since the *y*-coordinate is 1.

Step 4: Draw a dot and label it *I*.



Answer 34PA.

Consider,

$J(-1,-3)$

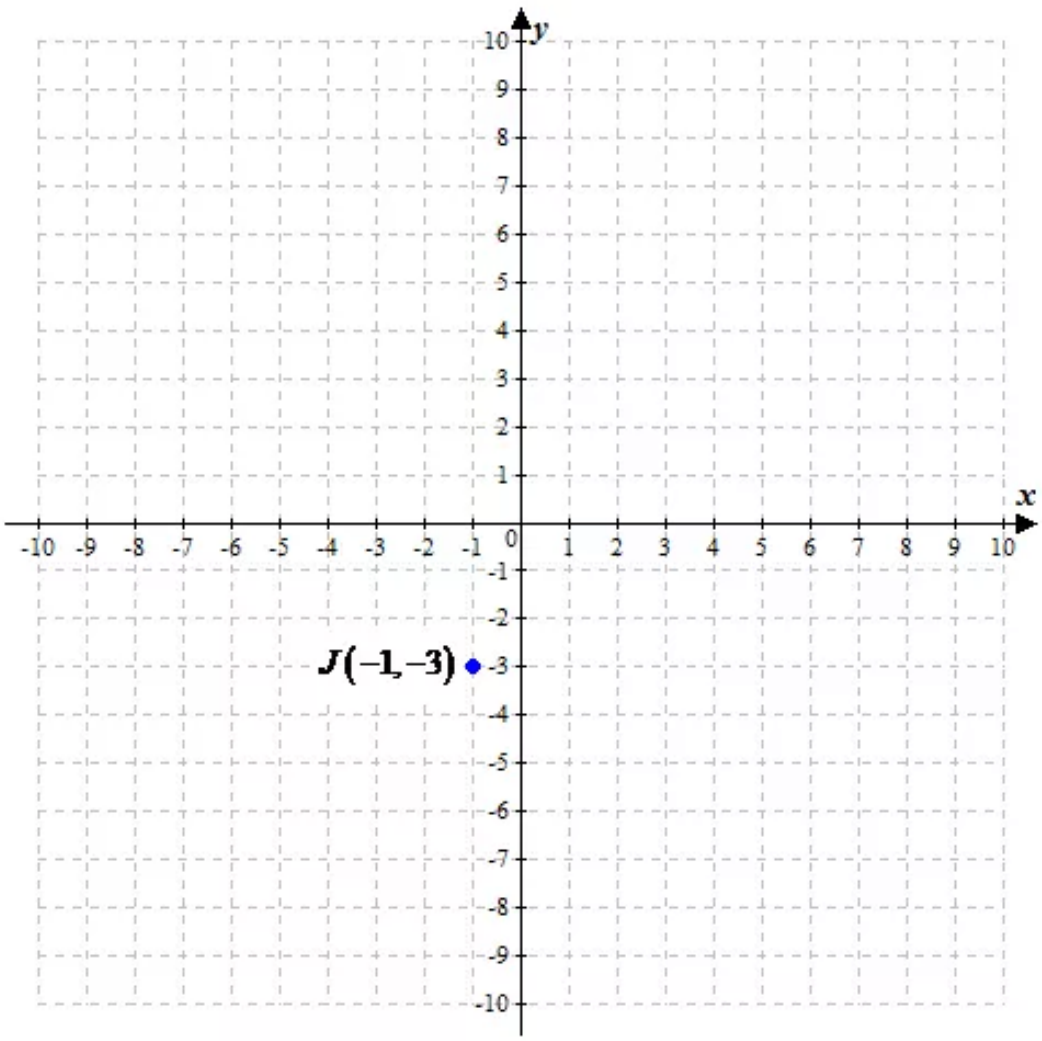
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move left 1 unit since the *x*-coordinate is -1.

Step 3: Move down 3 units since the *y*-coordinate is -3.

Step 4: Draw a dot and label it *J*.



Answer 35PA.

Consider,

$K(-4,0)$

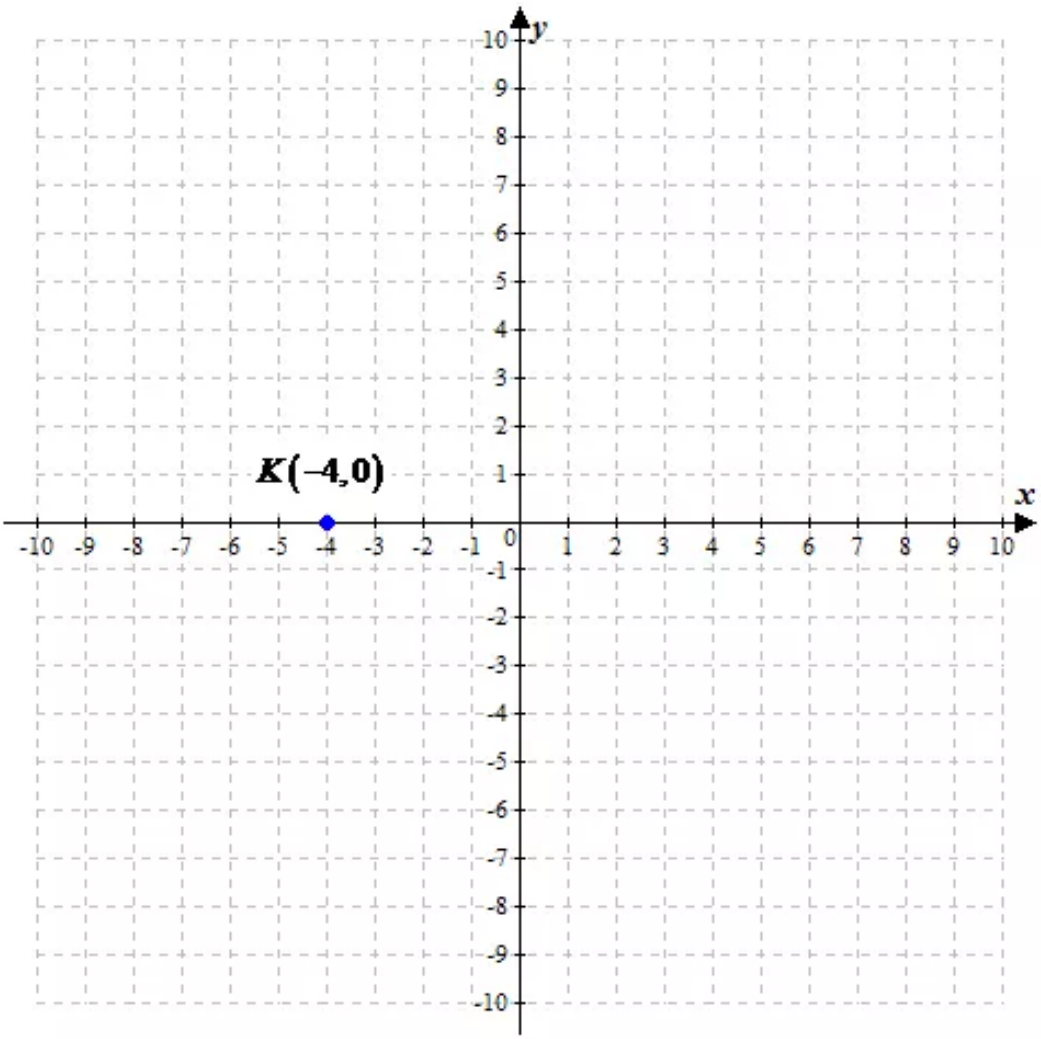
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Since the *y*-coordinate is 0, the point will be located on the *x*-axis.

Step 3: Move down 4 units since the *x*-coordinate is -4.

Step 4: Draw a dot and label it *K*.



Answer 36PA.

Consider,

$L(2,-4)$

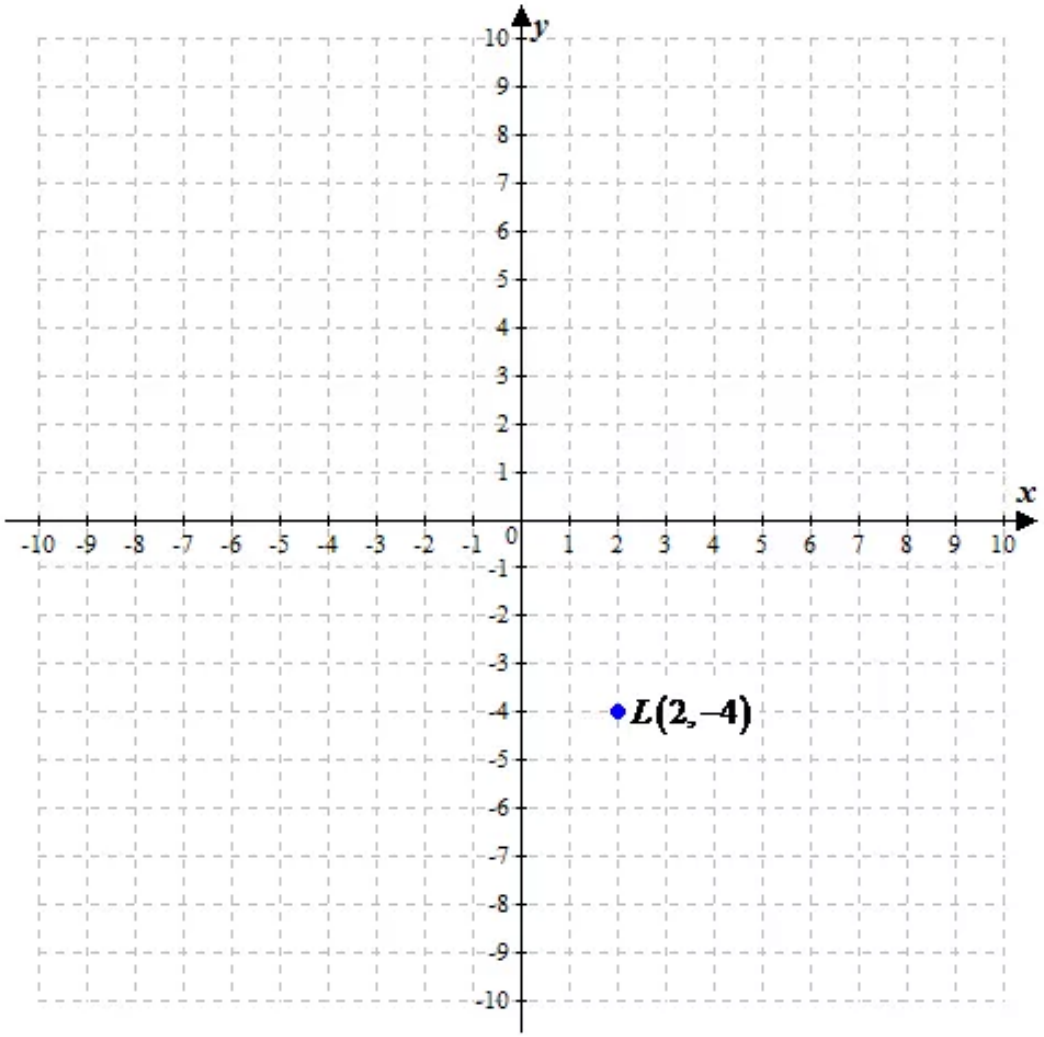
Plotting the point on a coordinate plane .

Step 1: Start at the origin.

Step 2: Move right 2 units since the *x*-coordinate is 2.

Step 3: Move down 4 units since the *y*-coordinate is -4.

Step 4: Draw a dot and label it *L*.



Answer 37PA.

Consider,

Two cities that have approximately the same latitude .

Using the map on page 194 .

Locate the two cities Louisville and Richmond on the map. Two cities are close to 400 latitude

Therefore, approximately the two cities $\boxed{\text{Louisville and Richmond}}$ have the same latitude .

Answer 38PA.

Consider,

Two cities that have approximately the same longitude .

Using the map on page 194 .

Locate the two cities Oklahoma City and Austin on the map. Two cities are close to 1000 longitude .

Therefore, the two cities $\boxed{\text{Oklahoma City and Austin}}$ approximately have the same latitude .

Answer 39PA.

The coordinates of the location for coins is (3,5) .

The coordinates of the location for plate is (7,2) .

The coordinates of the location for goblet is (8,4)

The coordinates of the location for vase is (5,9) .

Therefore, the coordinates of the location for coins, plate goblet and vase are $\boxed{(3,5),(7,2),(8,4) \text{ and } (5,9)}$.

Answer 40PA.

Consider,

In what sector is the undergraduate Library.

The map of the University of Michigan .

The Shapiro Undergraduate Library is in the sector C5.

Therefore, the Undergraduate Library is in the sector $\boxed{\text{C5}}$.

Answer 41PA.

Consider,

In what sector are most of the science buildings.

The Natural Science building, Chemistry building and Natural Resources and Environment buildings are in the sector C4.

Therefore, the most of the science buildings are in sector $\boxed{\text{C4}}$.

Answer 42PA.

The street goes from sector $(\text{A},2)$ to $(\text{D},2)$ is E.Huron Street .

Therefore, the $\boxed{\text{E.Huron Street}}$ goes from sector $(\text{A},2)$ to $(\text{D},2)$.

Answer 43PA.

The sectors that have bus stops .

The bus stops in the sectors are C2, B5, E1 and D4 .

Therefore, the names of sectors that have bus stops are $\boxed{\text{C2,B5,D4 and E1}}$.

Answer 45PA.

Archaeologists used coordinate systems as a mapping guide and as a system to record locations of artifacts .

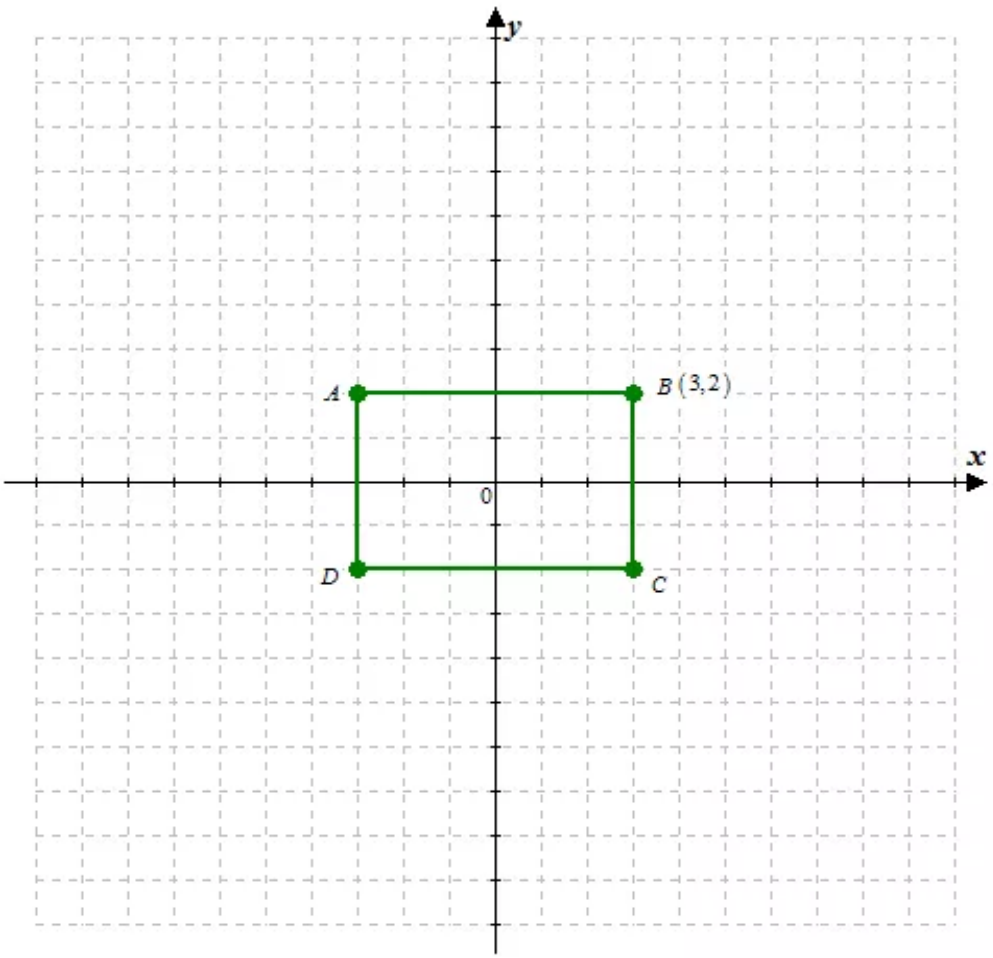
(a) The grid gives archaeologists a point of reference so they can identify and explain to others the location of artifacts in a site they are excavating. You can divide the space so more people can work at the same time in different areas .

(b) By knowing the exact location of artifacts helps archaeologists reconstruct historical events .

Answer 46PA.

Consider,

ABCD is a rectangle with its centre at the origin. The coordinates of the vertex *B* are $(3,2)$.



The point *A* is in II quadrant, the *x*-coordinate is negative and the *y*-coordinate is positive.

Since the rectangle has same dimensions.

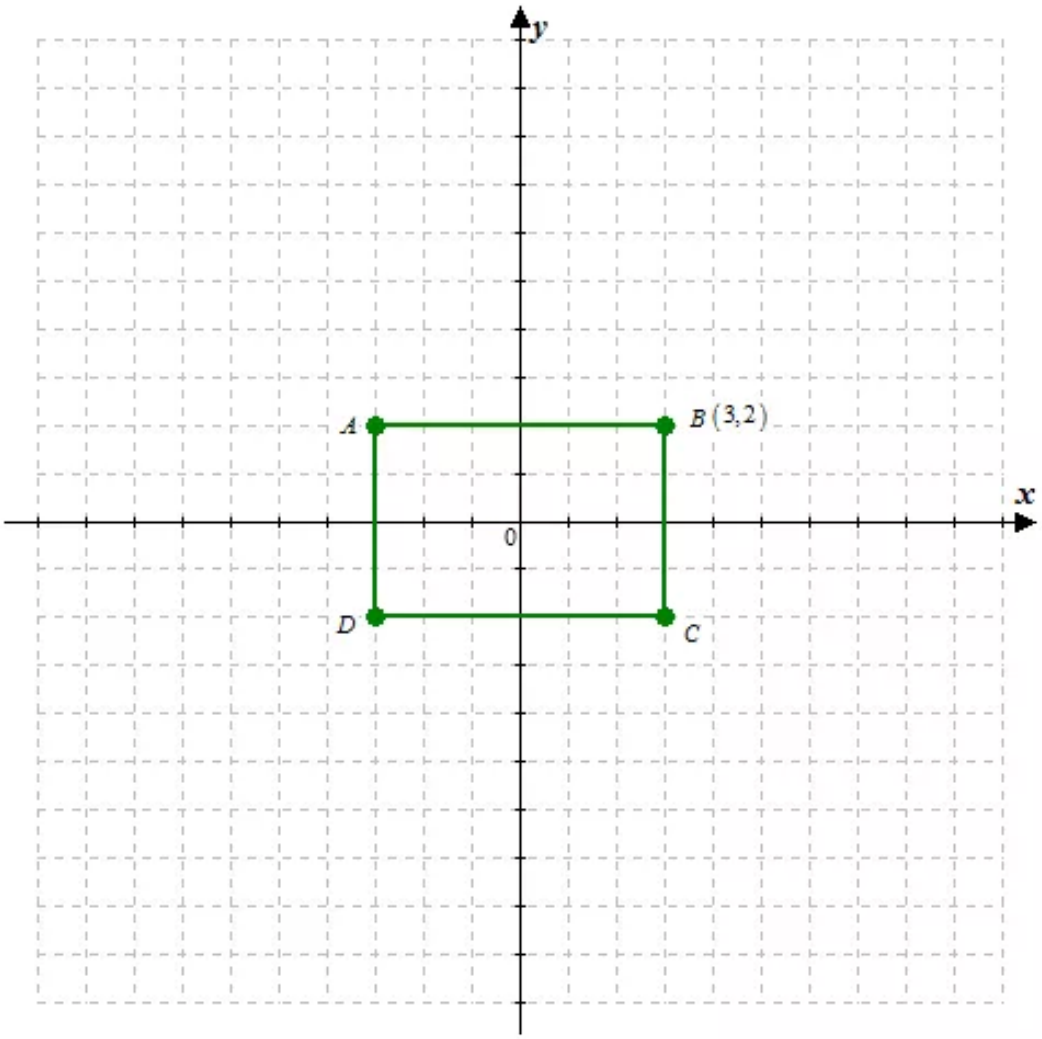
The coordinates of the vertex *A* are $(-3,2)$.

Therefore, the coordinates of the vertex *A* are $\boxed{(-3,2)}$.

Answer 47PA.

Consider,

The length of $\overline{AD}$.



Since the rectangle has same dimensions.

The coordinates of the vertex are $A(-3,2), D(-3,-2)$ and $C(3,2)$.

The length of $\overline{AD} = \sqrt{\left(-3-(-3)\right)^2+\left(2-(-2)\right)^2}$

$= \sqrt{(-3+3)^2+(2+2)^2}$

$= \sqrt{0+(4)^2}$

$= \sqrt{16}$

$= 4$

Therefore, the correct option is $\boxed{\text{B}}$.

Answer 48PA.

Consider,

$(7,1)$ and $(-3,1)$

The midpoint of a line segment whose endpoints are at (a,b) and (c,d) is at $\left(\frac{a+c}{2},\frac{b+d}{2}\right)$

.

Here, $(a,b)=(7,1)$ and $(c,d)=(-3,1)$

The midpoint of line segment whose endpoints are at $(7,1)$ and $(-3,1)$ is

$$\begin{aligned}\left(\frac{a+c}{2},\frac{b+d}{2}\right)&=\left(\frac{7+(-3)}{2},\frac{1+1}{2}\right)\\&=\left(\frac{7-3}{2},\frac{2}{2}\right)\\&=\left(\frac{4}{2},1\right)\\&=(2,1)\end{aligned}$$

Therefore, the midpoint of line segment is $\boxed{(2,1)}$.

Answer 49PA.

Consider,

$(5,-2)$ and $(9,-8)$

The midpoint of a line segment whose endpoints are at (a,b) and (c,d) is at $\left(\frac{a+c}{2},\frac{b+d}{2}\right)$

.

Here, $(a,b)=(5,-2)$ and $(c,d)=(9,-8)$

The midpoint of line segment whose endpoints are at $(5,-2)$ and $(9,-8)$ is

$$\begin{aligned}\left(\frac{a+c}{2},\frac{b+d}{2}\right)&=\left(\frac{5+9}{2},\frac{-2+(-8)}{2}\right)\\&=\left(\frac{14}{2},\frac{-2-8}{2}\right)\\&=\left(7,\frac{-10}{2}\right)\\&=(7,-5)\end{aligned}$$

Therefore, the midpoint of line segment is $\boxed{(7,-5)}$.

Answer 50PA.

Consider,

$(-4,4)$ and $(4,-4)$

The midpoint of a line segment whose endpoints are at (a,b) and (c,d) is at $\left(\frac{a+c}{2},\frac{b+d}{2}\right)$

.

Here, $(a,b)=(-4,4)$ and $(c,d)=(4,-4)$

The midpoint of line segment whose endpoints are at $(-4,4)$ and $(4,-4)$ is

$$\begin{aligned}\left(\frac{a+c}{2},\frac{b+d}{2}\right)&=\left(\frac{-4+4}{2},\frac{4+(-4)}{2}\right)\\&=\left(\frac{0}{2},\frac{4-4}{2}\right)\\&=\left(0,\frac{0}{2}\right)\\&=(0,0)\end{aligned}$$

Therefore, the midpoint of line segment is $\boxed{(0,0)}$.

Answer 52MYS.

Consider,

$3x+b=2x+5$

Solve the equation for *x*,

$$\begin{aligned}3x+b&=2x+5\\3x+b-b&=2x+5-b && \text{Subtract } b \text{ from both sides}\\3x&=2x+5-b && \text{Combine the common terms}\\3x-2x&=2x+5-b-2x && \text{Subtract } 2x \text{ from both sides}\\x&=5-b\end{aligned}$$

Therefore, the solved equation is $x=\boxed{5-b}$.

Answer 53MYS.

Consider,

$$10c = 2(2d + 3c)$$

Solve the equation for d,

$$10c = 2(2d + 3c)$$

$$\frac{10c}{2} = \frac{2(2d + 3c)}{2}$$ Divide both sides with 2

$$5c = 2d + 3c$$ Simplifying

$$5c - 3c = 2d + 3c - 3c$$ Subtract $3c$ from both sides

$$2c = 2d$$ Combine like terms

$$\frac{2c}{2} = \frac{2d}{2}$$ Divide both sides with 2

$$c = d$$ Simplifying

Therefore, the solved equation is $\boxed{d = c}$.

Answer 54MYS.

Consider,

$$6w - 3h = b$$

Solve the equation for h,

$$6w - 3h = b$$

$$6w - 3h + 3h = b + 3h$$ Subtract $3h$ from both sides

$$6w = b + 3h$$ Combine like terms

$$6w - b = b + 3h - b$$ Subtract b from both sides

$$6w - b = 3h$$ Combine like terms

$$\frac{6w - b}{3} = \frac{3h}{3}$$ Divide both sides with 3

$$\frac{1}{3}(6w - b) = h$$ Simplifying

Therefore, the solved equation is $\boxed{h = \frac{1}{3}(6w - b)}$.

Answer 55MYS.

Consider,

$$\frac{3(a-t)}{4}=2t$$

Solve the equation for t,

$$\frac{3(a-t)}{4}=2t$$

$$4\left[\frac{3(a-t)}{4}\right]=4[2t] \qquad \text{Multiply both sides with 4}$$

$$3(a-t)=8t \qquad \text{Combine like terms}$$

$$3a-3t=8t \qquad \text{Using Distributive Property}$$

$$3a-3t+3t=8t+3t \qquad \text{Add } 3t \text{ from both sides}$$

$$3a=11t \qquad \text{Combine like terms}$$

$$\frac{3a}{11}=\frac{11t}{11} \qquad \text{Divide both sides with 11}$$

$$\frac{3}{11}a=t \qquad \text{Simplifying}$$

Therefore, the solved equation is $\boxed{t=\frac{3}{11}a}$.

Answer 56MYS.

Consider,

$$-\sqrt{81}$$

Simplifying the radical expression

$-\sqrt{81}=-\sqrt{9\times 9}$ Multiplication Property of Square Roots

$=-\left[(9)^2\right]^{\frac{1}{2}}$ $\sqrt{a}=a^{\frac{1}{n}}$

$=-9$ Simplify

Therefore the square root of $-\sqrt{81}$ is $\boxed{-9}$.

Answer 57MYS.

Consider,

$$\sqrt{63}$$

Simplifying the radical expression

$\sqrt{63}=\sqrt{9}\times\sqrt{7}$ Multiplication Property of Square Roots

$=3\times\sqrt{7}$ $\sqrt{9}=3$

$=3\sqrt{7}$ Simplify

Therefore the square root of $\sqrt{63}$ is $\boxed{3\sqrt{7}}$.

Answer 58MYS.

Consider,

$\sqrt{180}$

Simplifying the radical expression

$\sqrt{180} = \sqrt{36} \times \sqrt{5}$ Multiplication Property of Square Roots

$= 6 \times \sqrt{5}$ $\sqrt{36} = 6$

$= 6\sqrt{5}$ Simplify

Therefore the square root of $\sqrt{180}$ is $\boxed{6\sqrt{5}}$.

Answer 59MYS.

Consider,

$-\sqrt{256}$

Simplifying the radical expression

$-\sqrt{256} = -\sqrt{16} \times \sqrt{16}$ Multiplication Property of Square Roots

$= -4 \times 4$ $\sqrt{16} = 4$

$= -16$ Simplify

Therefore the square root of $-\sqrt{256}$ is $\boxed{-16}$.

Answer 60MYS.

Consider,

$52 + |18 - 7|$

Evaluating the expression,

$52 + |18 - 7| = 52 + |11|$ First add terms in the absolute value

$= 52 + 11$ Since $|11| = 11$

$= 63$ Combine like terms

Therefore, the evaluated expression of $52 + |18 - 7|$ is $\boxed{63}$.

Answer 61MYS.

Consider,

$|81 - 47| + 17$

Evaluating the expression,

$|81 - 47| + 17 = |34| + 17$ First add terms in the absolute value

$= 34 + 17$ Since $|34| = 34$

$= 51$ Combine like terms

Therefore, the evaluated expression of $|81 - 47| + 17$ is $\boxed{51}$.

Answer 62MYS.

Consider,

$$42-|60-74|$$

Evaluating the expression,

$$\begin{aligned} 42-|60-74| &= 42-|-14| && \text{First add terms in the absolute value} \\ &= 42-14 && \text{Since } |-14|=14 \\ &= 28 && \text{Combine like terms} \end{aligned}$$

Therefore, the evaluated expression of $42-|60-74|$ is $\boxed{28}$.

Answer 63MYS.

Consider,

$$36-|15-21|$$

Evaluating the expression,

$$\begin{aligned} 36-|15-21| &= 36-|-6| && \text{First add terms in the absolute value} \\ &= 36-6 && \text{Since } |-6|=6 \\ &= 30 && \text{Combine like terms} \end{aligned}$$

Therefore, the evaluated expression of $36-|15-21|$ is $\boxed{30}$.

Answer 64MYS.

Consider,

$$|10-16+27|$$

Evaluating the expression,

$$\begin{aligned} |10-16+27| &= |37-16| && \text{First add terms in the absolute value} \\ &= |21| && \text{Subtract terms in the absolute vale} \\ &= 21 \end{aligned}$$

Therefore, the evaluated expression of $|10-16+27|$ is $\boxed{21}$.

Answer 65MYS.

Consider,

$$|38-65-21|$$

Evaluating the expression,

$$\begin{aligned} |38-65-21| &= |38-86| && \text{First add terms in the absolute value} \\ &= |-48| && \text{Subtract terms in the absolute vale} \\ &= 48 \end{aligned}$$

Therefore, the evaluated expression of $|38-65-21|$ is $\boxed{48}$.

Answer 66MYS.

Consider,

$4(x+y)$

Using the Distributive Property, $a(b+c)=ab+ac$

Rewriting the expression using the Distributive Property,

$4(x+y)=4\cdot x+4\cdot y$ Using Distributive Property

$4x+4y$ Simplify

Therefore, the simplified expression is $\boxed{4x+4y}$.

Answer 67MYS.

Consider,

$-1(x+3)$

Using the Distributive Property, $a(b+c)=ab+ac$

Rewriting the expression using the Distributive Property,

$-1(x+3)=-1\cdot x+(-1)\cdot 3$ Using Distributive Property

$=-x-3$ Simplify

Therefore, the simplified expression is $\boxed{-x-3}$.

Answer 68MYS.

Consider,

$3(1-6y)$

Using the Distributive Property, $a(b+c)=ab+ac$

Rewriting the expression using the Distributive Property,

$3(1-6y)=3\cdot 1+3\cdot(-6y)$ Using Distributive Property

$=3-3(6y)$ Simplify

$=3-18y$

Therefore, the simplified expression is $\boxed{3-18y}$.

Answer 69MYS.

Consider,

$-3(2x-5)$

Using the Distributive Property, $a(b+c)=ab+ac$

Rewriting the expression using the Distributive Property,

$-3(2x-5)=-3\cdot(2x)+(-3)\cdot(-5)$ Using Distributive Property

$=-6x+15$ Simplify

Therefore, the simplified expression is $\boxed{-6x+15}$.

Answer 70MYS.

Consider,

$$\frac{1}{3}(2x+6y)$$

Using the Distributive Property, $a(b+c)=ab+ac$

Rewriting the expression using the Distributive Property,

$$\frac{1}{3}(2x+6y)=\frac{1}{3}\cdot(2x)+\frac{1}{3}\cdot(6y) \qquad \text{Using Distributive Property}$$

$$=\frac{2}{3}x+2y \qquad \text{Simplify}$$

Therefore, the simplified expression is $\boxed{\frac{2}{3}x+2y}$.

Answer 71MYS.

Consider,

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

Using the Distributive Property, $a(b+c)=ab+ac$

Rewriting the expression using the Distributive Property,

$$\frac{1}{4}(5x-2y)=\frac{1}{4}\cdot(5x)+\frac{1}{4}\cdot(-2y) \qquad \text{Using Distributive Property}$$

$$=\frac{5}{4}x-\frac{1}{2}y \qquad \text{Simplify}$$

Therefore, the simplified expression is $\boxed{\frac{5}{4}x-\frac{1}{2}y}$.