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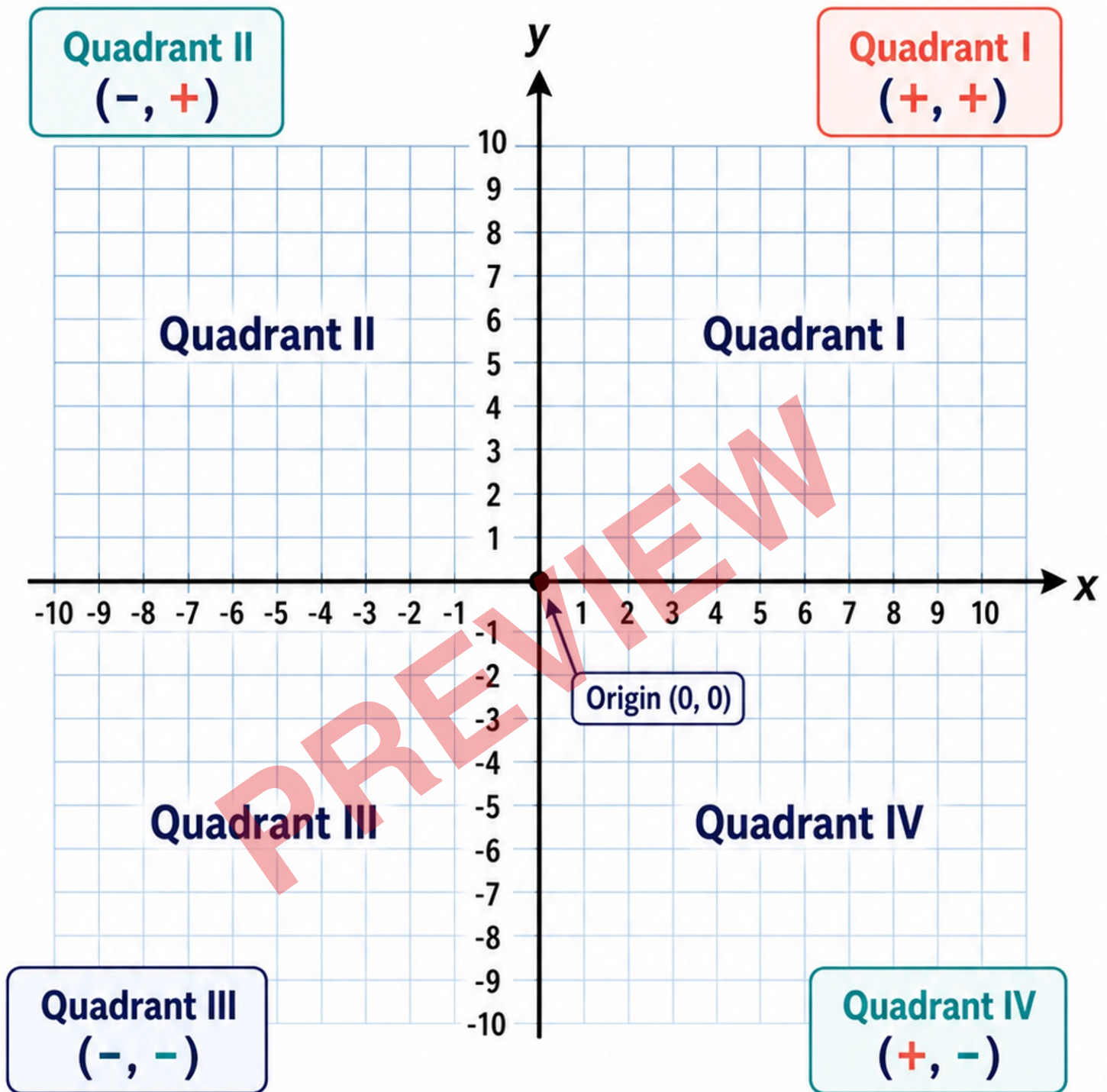


Cartesian Coordinates - Year 6

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Four Quadrants at a Glance



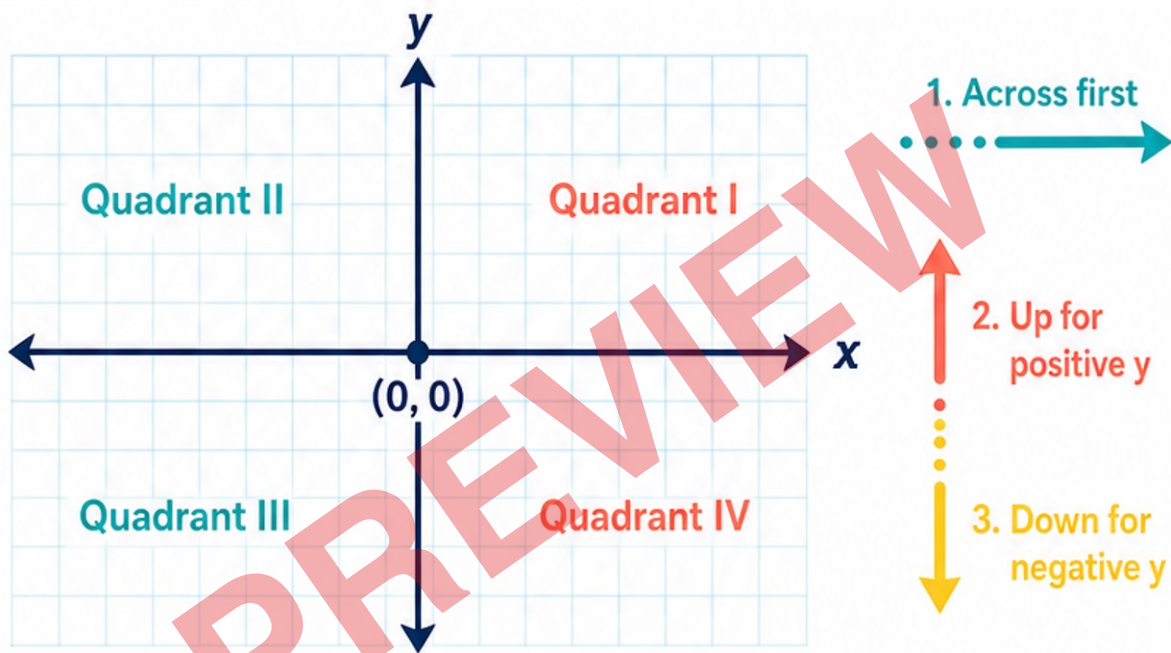
Across first, then **up** or **down**.



Coordinates are written **(x, y)**.

Human Coordinate Plane

1. Make a large x-axis and y-axis on the floor.
2. Stand at the origin, then move across first.
3. Move up for positive y or down for negative y.
4. Call out your ordered pair and quadrant.



1

Stand at
(4, 3).

2

Stand at
(-5, 2).

3

Stand at
(-3, -4).

4

Stand at
(6, -2).

5

Move from
(2, 5) to
(2, -1).

6

Move from
(-4, -3) to
(3, -3).

7

Create a
point in
Quadrant II.

8

Create a
point on
the y-axis.

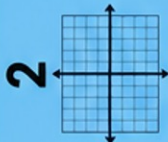


... Take turns as caller, mover and checker.

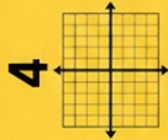
Coordinate Quest

START

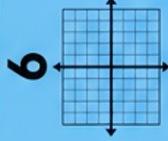
1
Name
Quadrant II



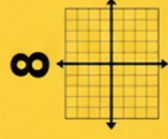
3
Plot
(4, -3)



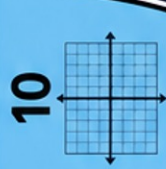
5
Read
(-5, 2)



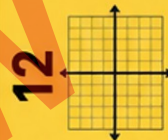
7
Move 3 right



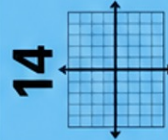
9
Name the
origin



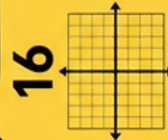
11
Plot
(-2, -6)



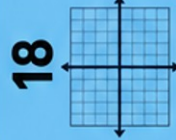
13
Move 4 up



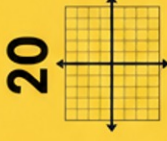
15
Read
(6, 5)



17
Name
Quadrant IV

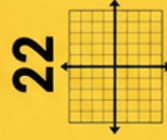


19
Swap x and y

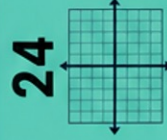


20

21
Point on
x-axis

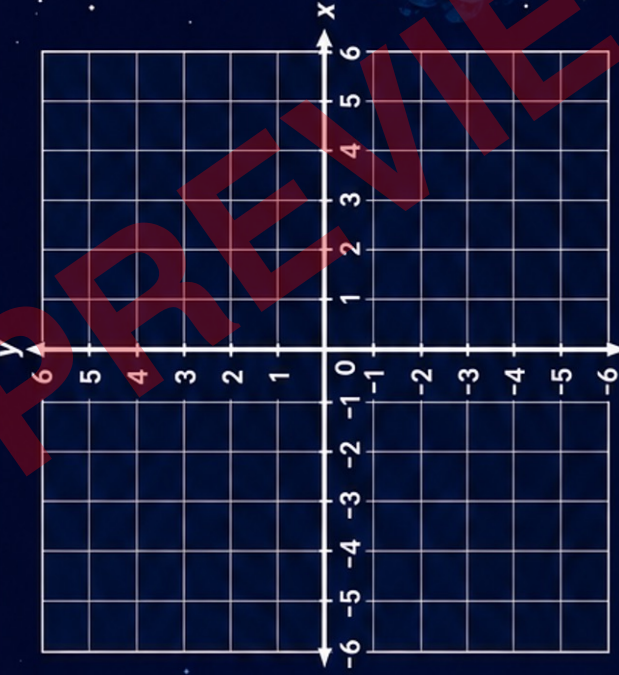


23
Point on
y-axis



24

FINISH



HOW TO PLAY

Roll and move.

Complete the challenge.

If correct, stay.

If not, move back one.



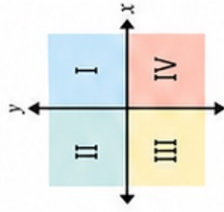
2-4 players



You need:
one die and
counters.

Coordinate Quest Challenge Cards

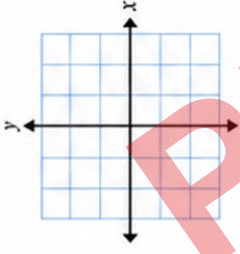
1



Which quadrant contains $(-4, 7)$?

II

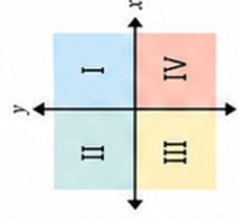
2



Plot A at $(5, -3)$.

Quadrant IV

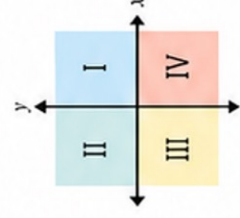
3



Move $(-2, 4)$ three units right.

$(1, 4)$

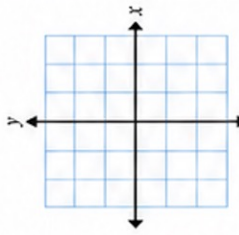
4



Move $(6, -1)$ four units up.

$(6, 9)$

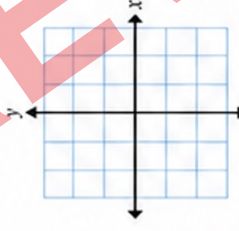
5



Which axis contains $(0, -8)$?

y-axis

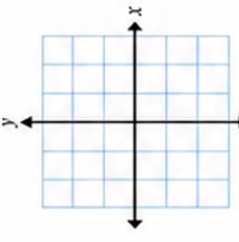
6



Which axis contains $(9, 0)$?

x-axis

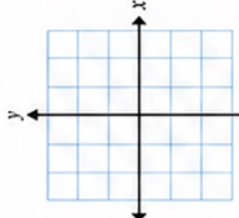
7



Name the origin.

$(0, 0)$

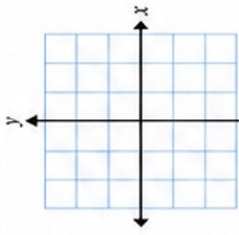
8



Reflect $(3, 5)$ across the y-axis.

$(-3, 5)$

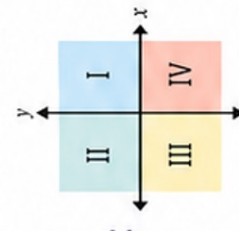
9



Reflect $(-6, -2)$ across the x-axis.

$(-6, 2)$

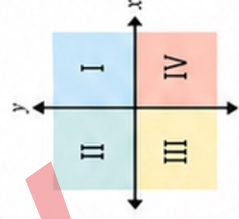
10



Which quadrant contains $(7, 6)$?

I

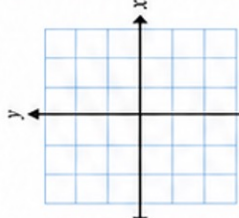
11



Write a point in Quadrant III.

Both coordinates negative

12



Swap x and y in $(-3, 8)$.

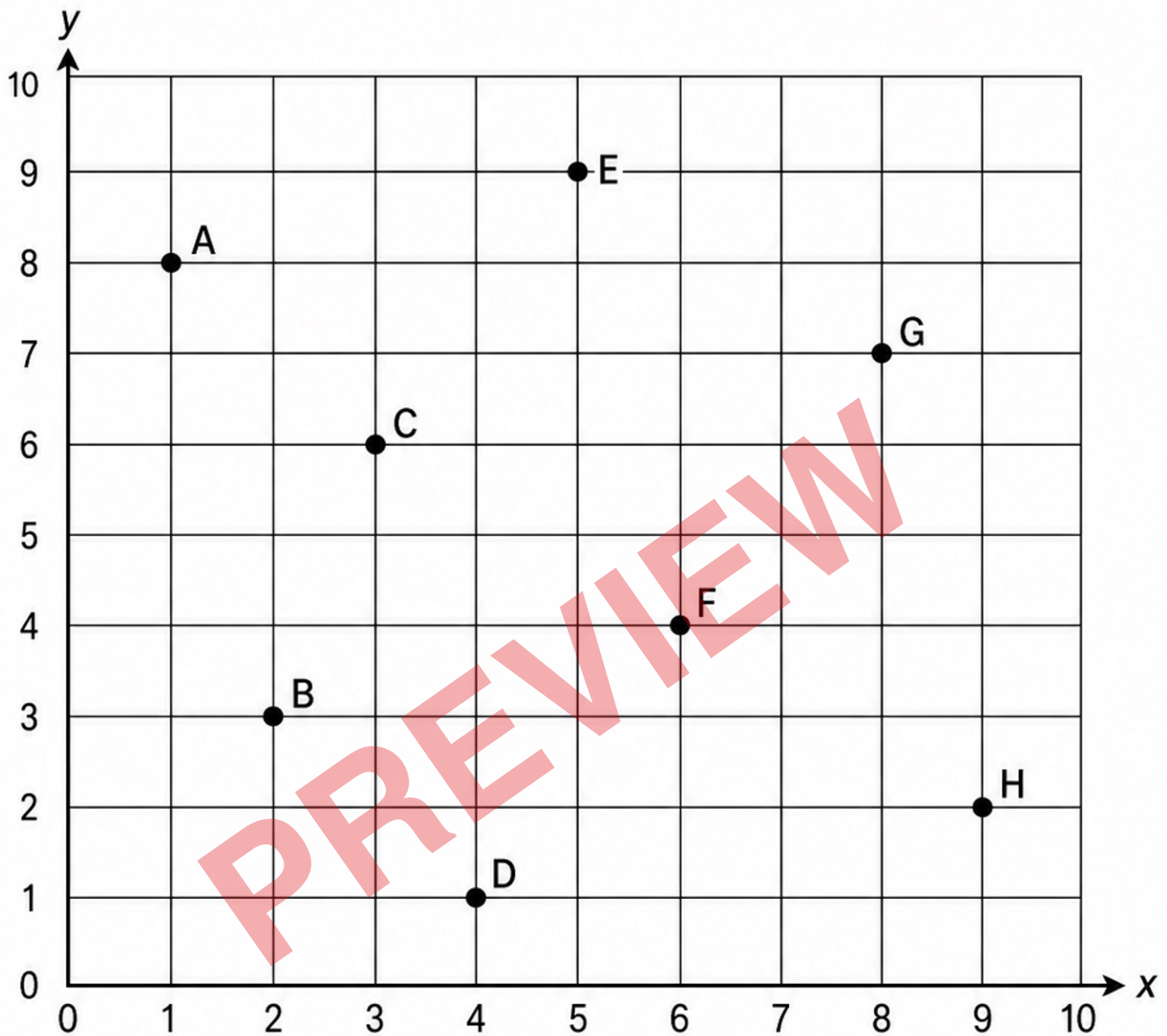
$(8, -3)$

Name: _____

Date: _____

Read the Grid – First Quadrant

Write the ordered pair for each labelled point. Remember: across first, then up.



A: _____

E: _____

B: _____

F: _____

C: _____

G: _____

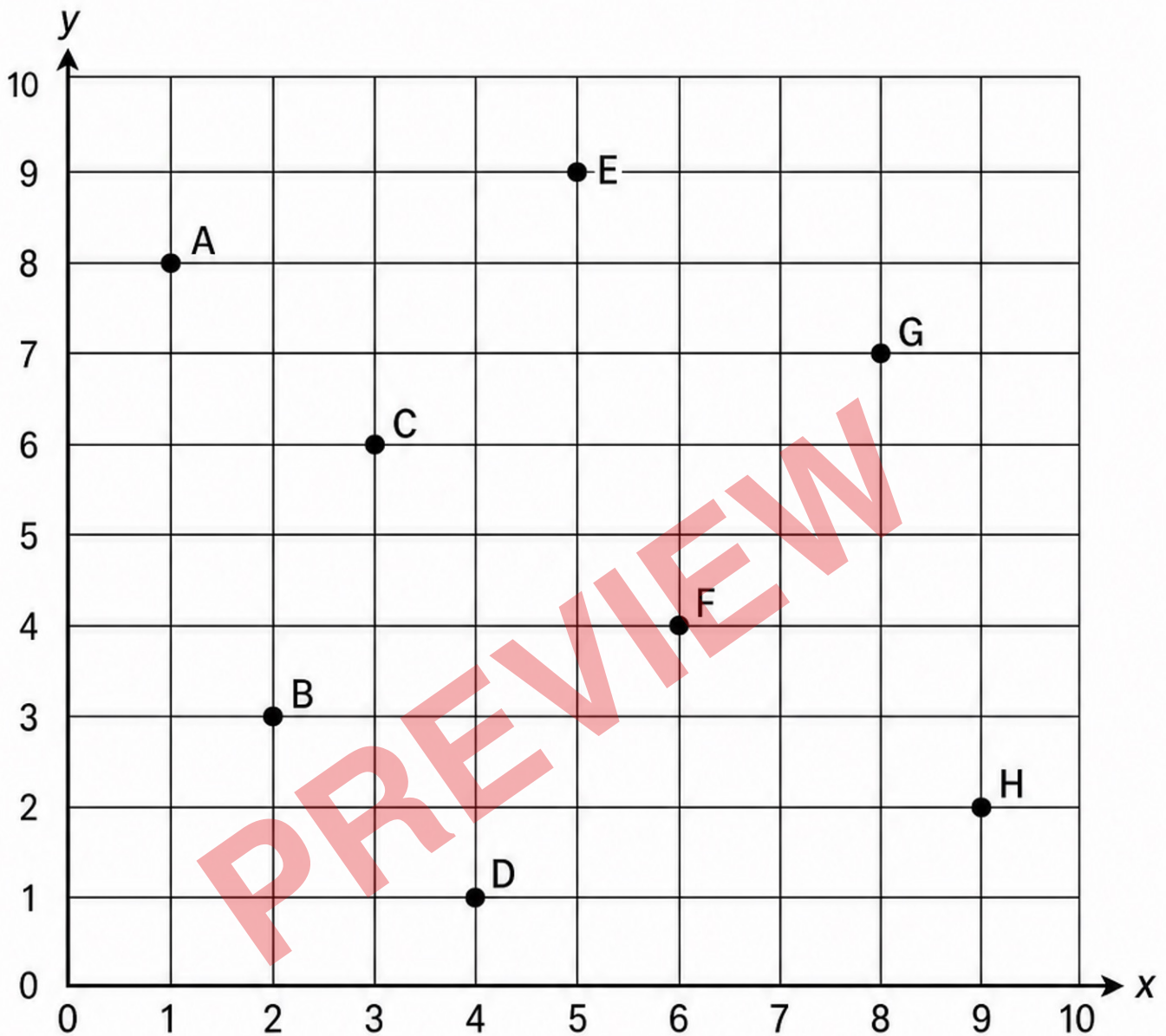
D: _____

H: _____

Why does the order of the numbers matter in an ordered pair?

Read the Grid – First Quadrant

Write the ordered pair for each labelled point. Remember: across first, then up.

A: (1, 8)E: (5, 9)B: (2, 3)F: (6, 4)C: (3, 6)G: (8, 7)D: (4, 1)H: (9, 2)

Why does the order of the numbers matter in an ordered pair?

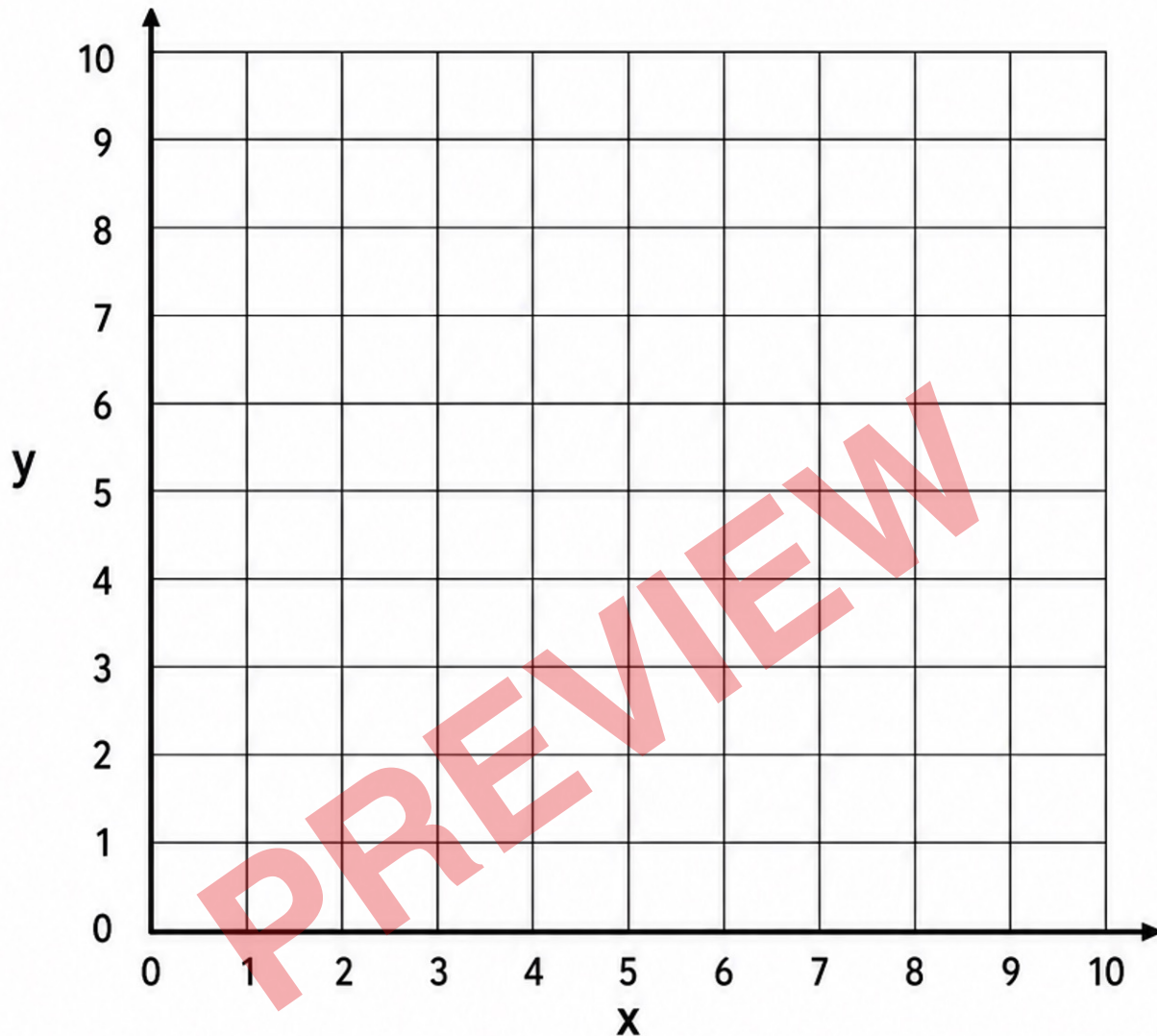
The first number gives x and the second gives y, so
changing the order changes the point.

Name: _____

Date: _____

Plot It – First Quadrant

Plot and label each point on the grid. Use a ruler and check x before y.



A (1, 4)

B (2, 9)

C (3, 2)

D (4, 7)

E (6, 1)

F (7, 8)

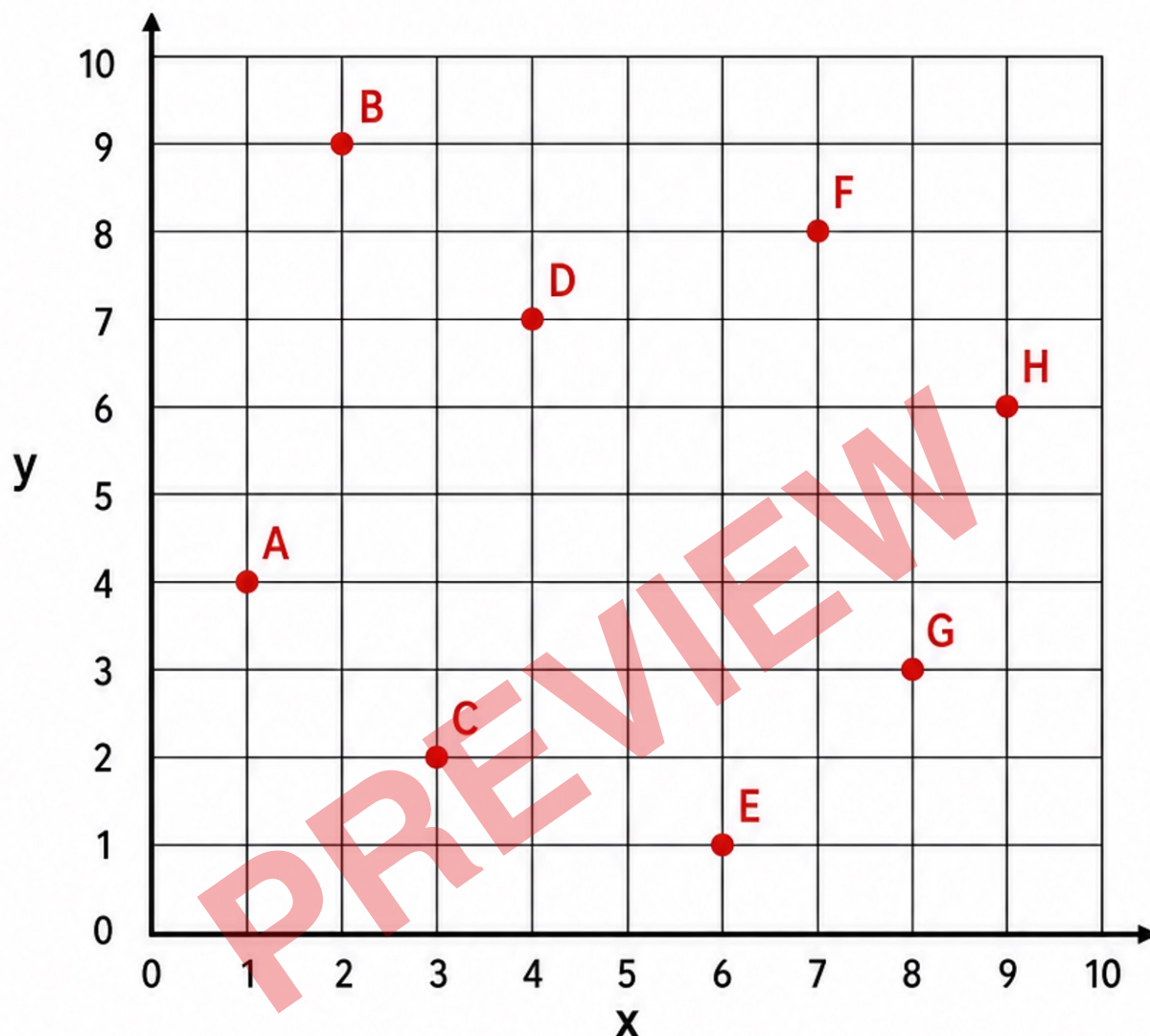
G (8, 3)

H (9, 6)

Which two points have the greatest vertical distance between them? Explain.

Plot It – First Quadrant

Plot and label each point on the grid. Use a ruler and check x before y.



A (1, 4)

B (2, 9)

C (3, 2)

D (4, 7)

E (6, 1)

F (7, 8)

G (8, 3)

H (9, 6)

Which two points have the greatest vertical distance between them? Explain.

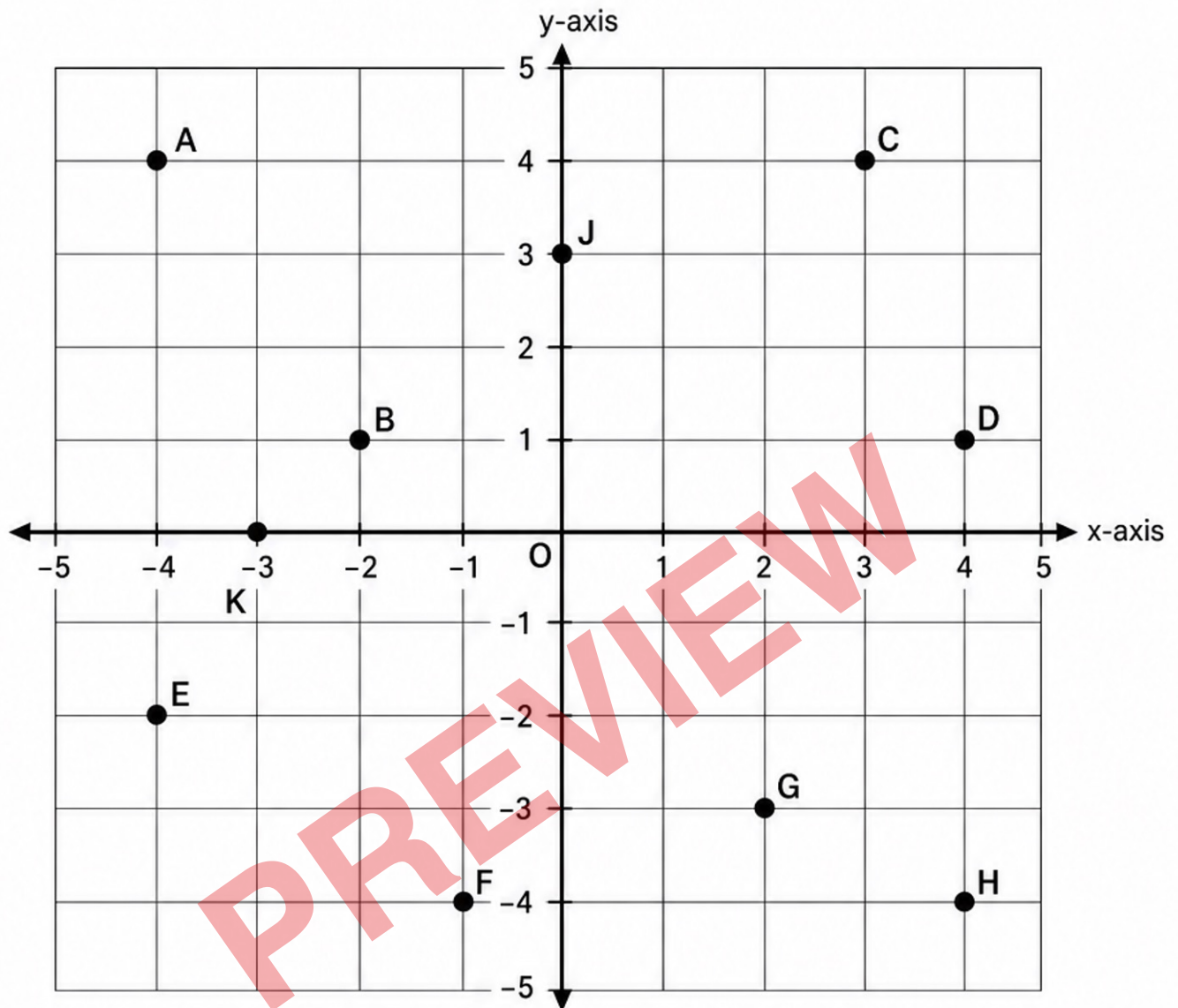
B and E; their y-values are 9 and 1, a vertical distance of 8 units.

Name: _____

Date: _____

Four-Quadrant Detective

For each labelled point, write its ordered pair and name its quadrant or axis.

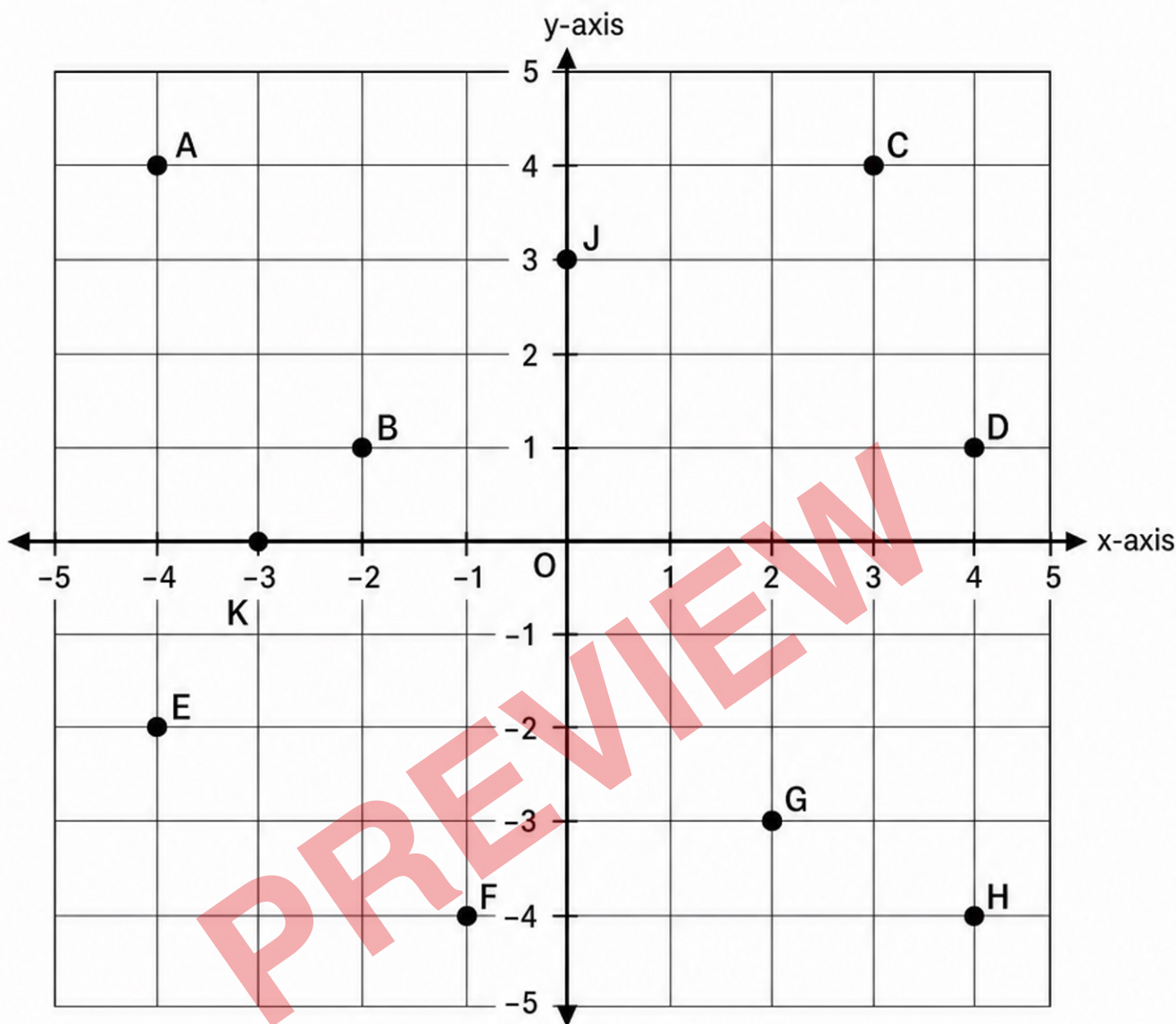


Point	Ordered pair	Quadrant or axis
A		
B		
C		
D		
E		
F		
G		
H		
J		
K		

Quadrants are named I, II, III and IV.

Four-Quadrant Detective

For each labelled point, write its ordered pair and name its quadrant or axis.



Point	Ordered pair	Quadrant or axis
A	$(-4, 4)$	Quadrant II
B	$(-2, 1)$	Quadrant II
C	$(3, 4)$	Quadrant I
D	$(4, 1)$	Quadrant I
E	$(-4, -2)$	Quadrant III
F	$(-1, -4)$	Quadrant III
G	$(2, -3)$	Quadrant IV
H	$(4, -4)$	Quadrant IV
J	$(0, 3)$	y-axis
K	$(-3, 0)$	x-axis

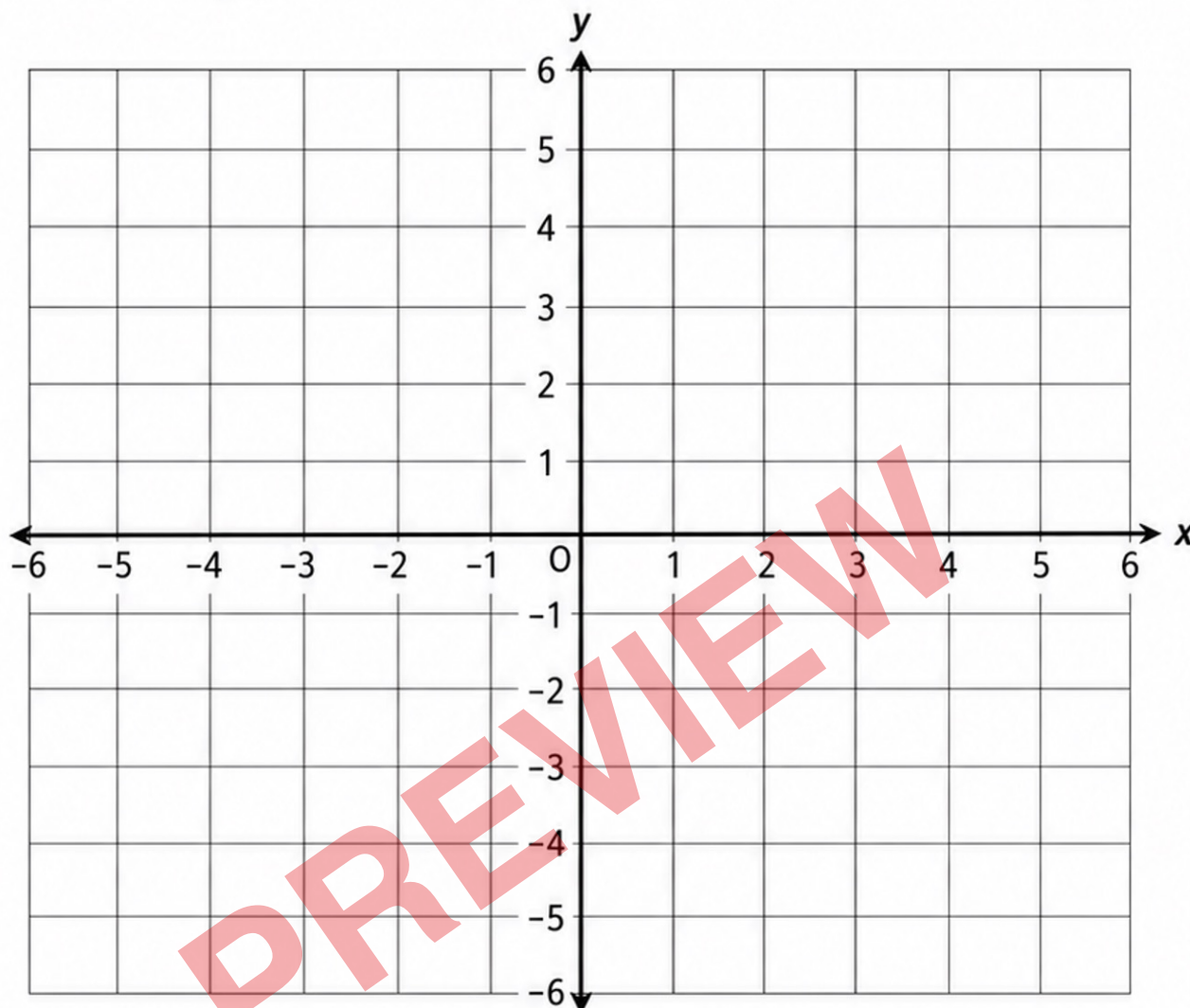
Quadrants are named I, II, III and IV.

Name: _____

Date: _____

Move the Point

Plot each start point. Apply the movement, draw an arrow and record the new ordered pair.



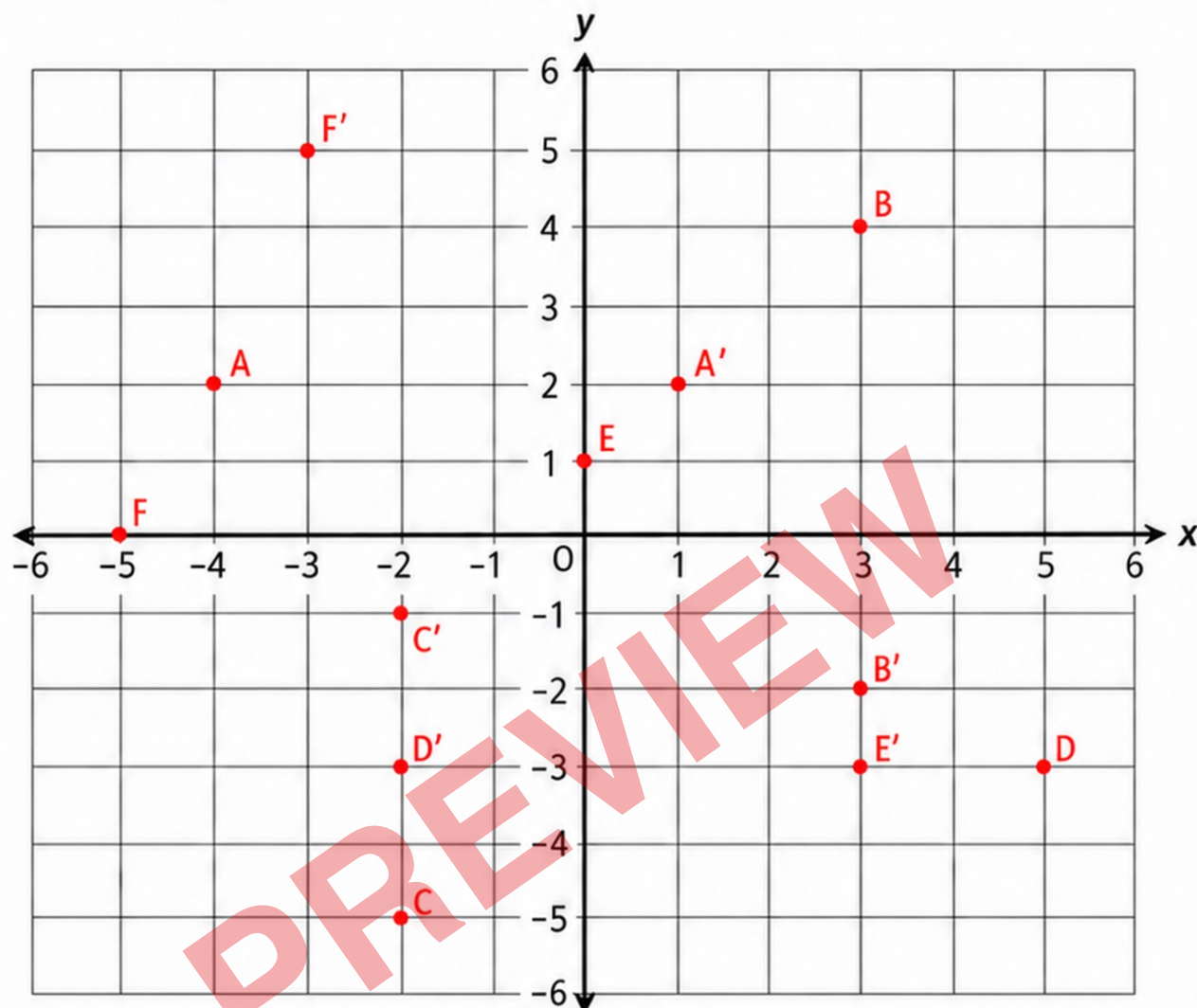
Start	Movement	New ordered pair
A (-4, 2)	5 right	
B (3, 4)	6 down	
C (-2, -5)	4 up	
D (5, -3)	7 left	
E (0, 1)	3 right, 4 down	
F (-5, 0)	2 right, 5 up	

Which coordinate changes during a horizontal move? _____

Which coordinate changes during a vertical move? _____

Move the Point

Plot each start point. Apply the movement, draw an arrow and record the new ordered pair.



Start	Movement	New ordered pair
A (-4, 2)	5 right	A' (1, 2)
B (3, 4)	6 down	B' (3, -2)
C (-2, -5)	4 up	C' (-2, -1)
D (5, -3)	7 left	D' (-2, -3)
E (0, 1)	3 right, 4 down	E' (3, -3)
F (-5, 0)	2 right, 5 up	F' (-3, 5)

Which coordinate changes during a horizontal move? x-coordinate

Which coordinate changes during a vertical move? y-coordinate



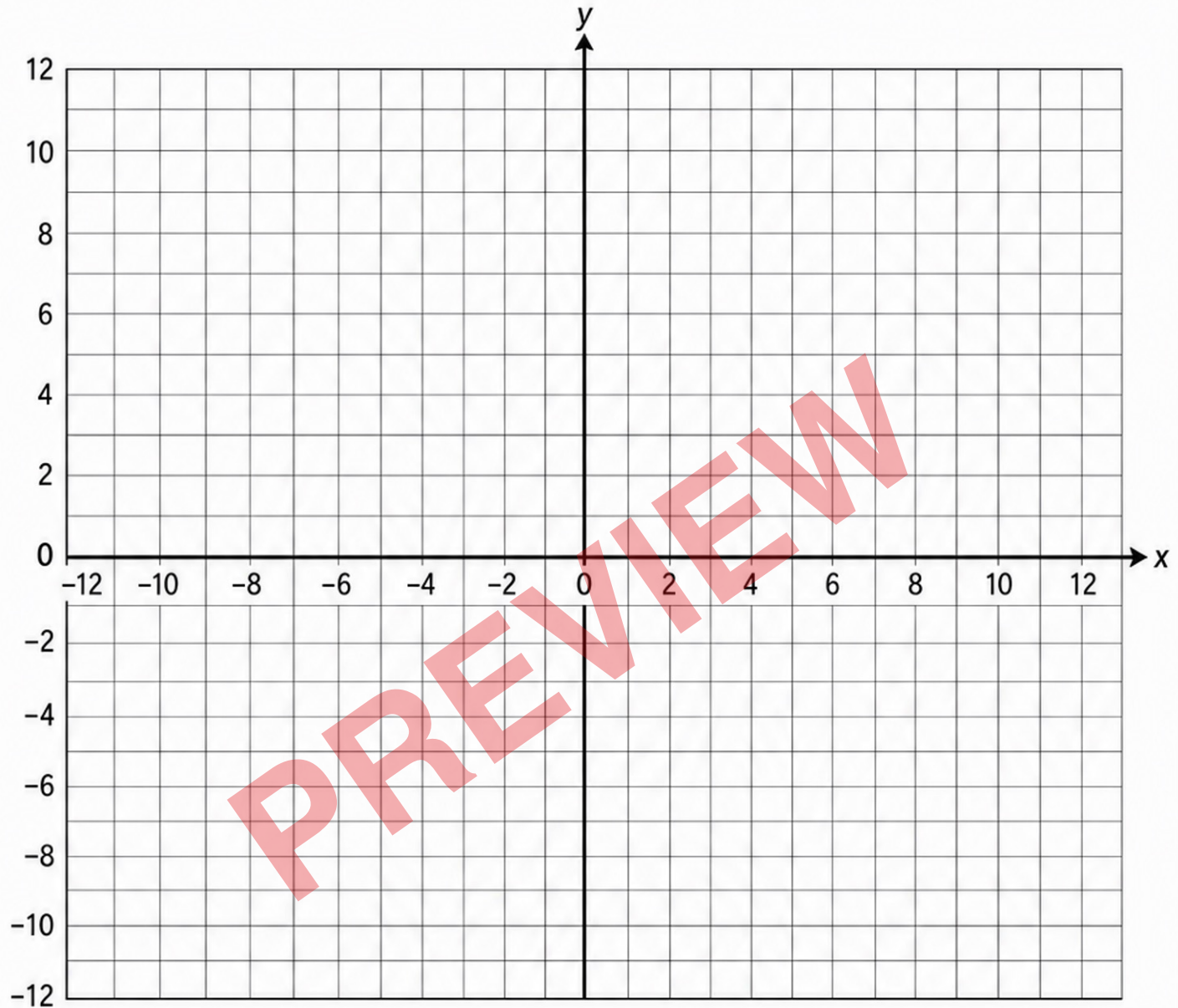
Coordinate Art – Space Rover



Name: _____

Date: _____

Plot each sequence in order. Join consecutive points with a ruler. Begin a new line for each sequence.



1 Body: $(-6, -3)$, $(6, -3)$, $(6, 4)$, $(-6, 4)$, $(-6, -3)$

2 Cabin: $(-5, 4)$, $(-3, 7)$, $(3, 7)$, $(5, 4)$

3 Left wheel: $(-5, -4)$, $(-4, -6)$, $(-3, -4)$, $(-4, -3)$, $(-5, -4)$

4 Right wheel: $(3, -4)$, $(4, -6)$, $(5, -4)$, $(4, -3)$, $(3, -4)$

5 Antenna: $(1, 7)$, $(1, 9)$, $(2, 10)$

Add one original detail and list its coordinates.





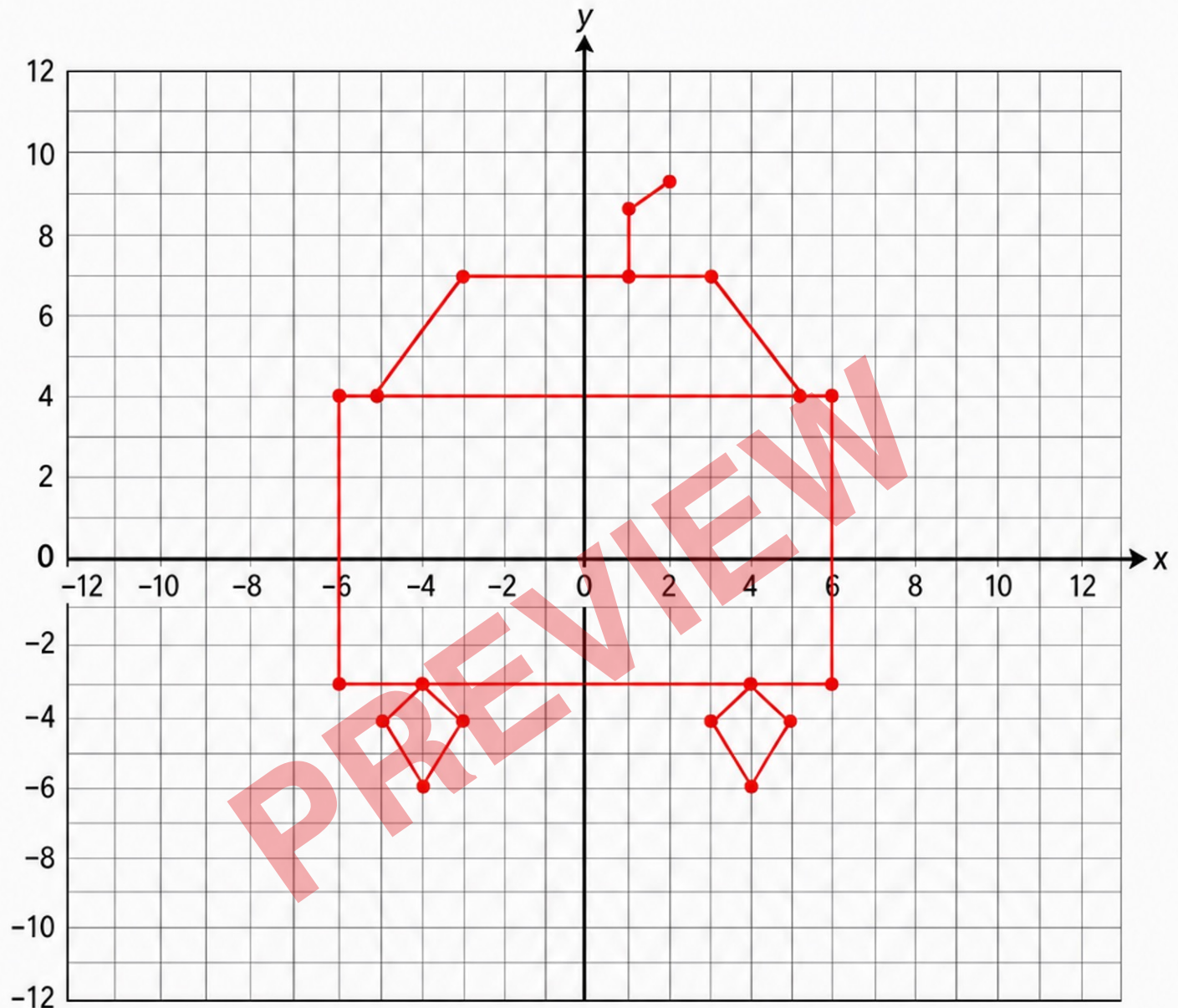
Coordinate Art – Space Rover



ANSWERS _____

Date: _____

Plot each sequence in order. Join consecutive points with a ruler. Begin a new line for each sequence.



- | | |
|---|--|
| 1 | Body: $(-6, -3), (6, -3), (6, 4), (-6, 4), (-6, -3)$ |
| 2 | Cabin: $(-5, 4), (-3, 7), (3, 7), (5, 4)$ |
| 3 | Left wheel: $(-5, -4), (-4, -6), (-3, -4), (-4, -3), (-5, -4)$ |
| 4 | Right wheel: $(3, -4), (4, -6), (5, -4), (4, -3), (3, -4)$ |
| 5 | Antenna: $(1, 7), (1, 9), (2, 10)$ |

Add one original detail and list its coordinates.



- **Answers will vary.** _____

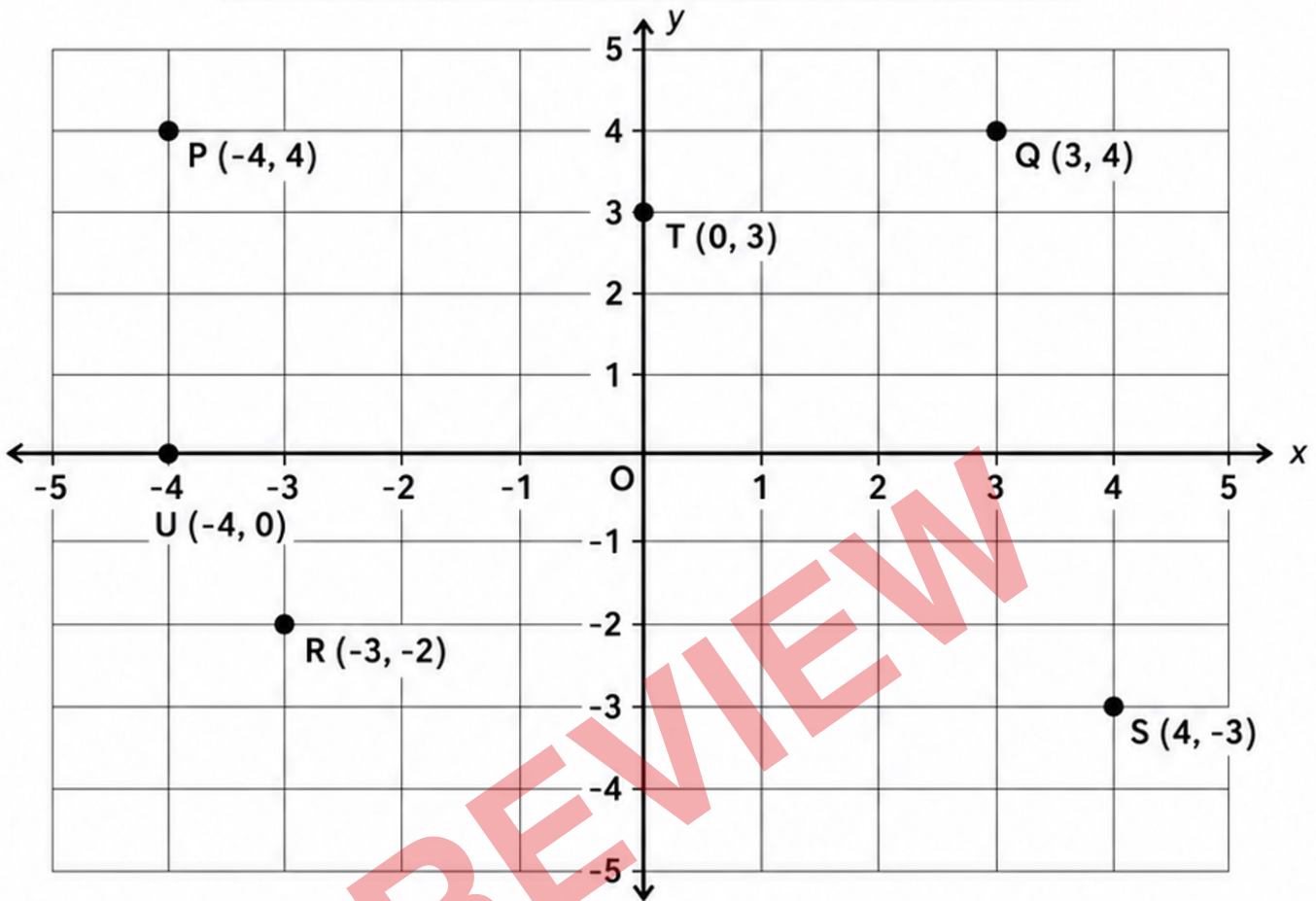
Cartesian Coordinates Check-Up – Page 1

Name: _____

Date: _____

Year 6 Mathematics • AC9M6SP02

Read, record and plot points in all four quadrants.



1. Write the ordered pair for P.
2. Write the ordered pair for Q.
3. Write the ordered pair for R.
4. Write the ordered pair for S.
5. Where is T located: quadrant or axis?
6. Where is U located: quadrant or axis?
7. Plot and label V at (2, -4).
8. Plot and label W at (-2, 3).
9. Write the coordinates of the origin.
10. Explain why (-3, 2) and (2, -3) are different points.

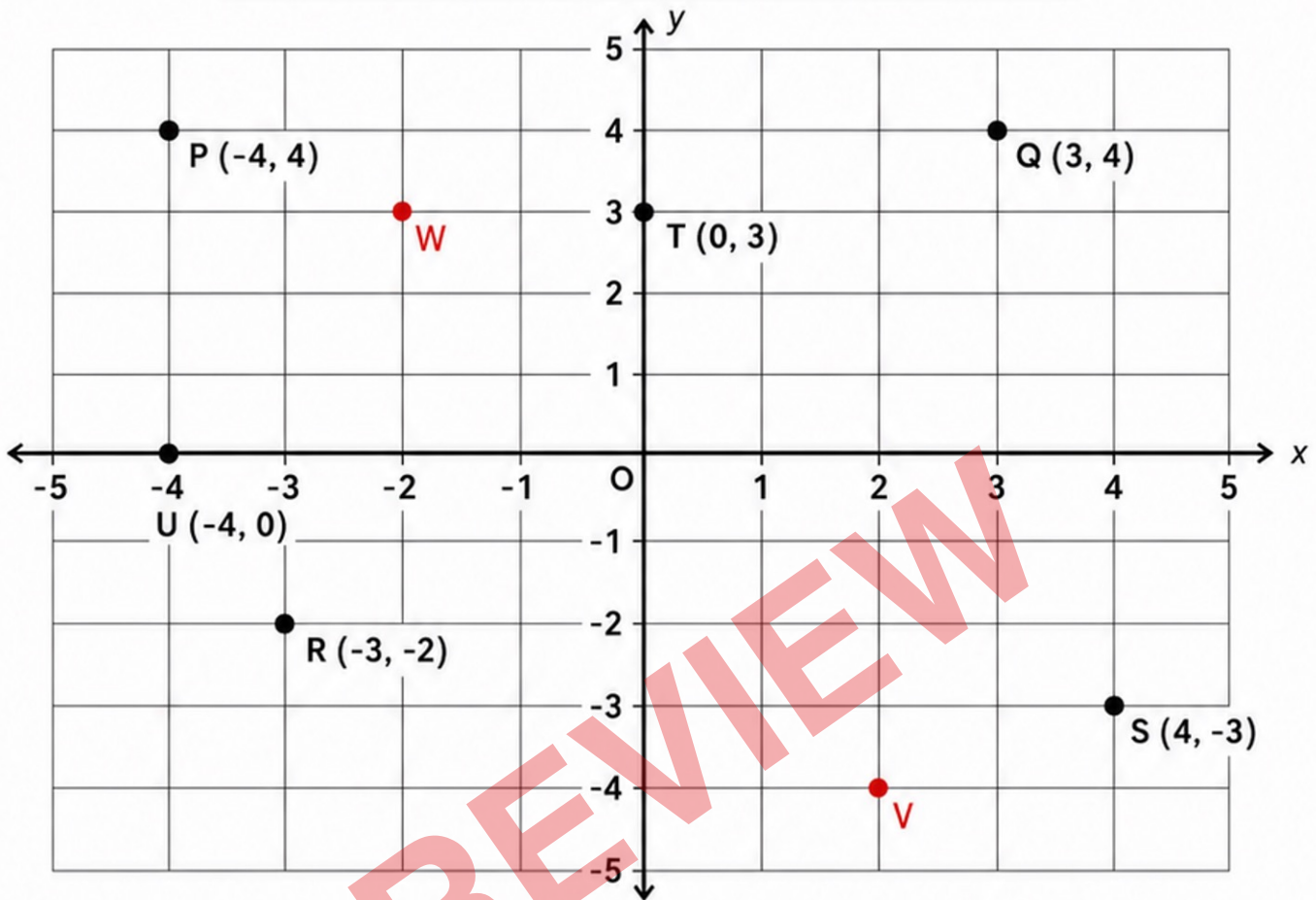
Cartesian Coordinates Check-Up – Page 1

ANSWERS _____

Date: _____

Year 6 Mathematics • AC9M6SP02

Read, record and plot points in all four quadrants.



1. Write the ordered pair for P. (-4, 4)
2. Write the ordered pair for Q. (3, 4)
3. Write the ordered pair for R. (-3, -2)
4. Write the ordered pair for S. (4, -3)
5. Where is T located: quadrant or axis? y-axis
6. Where is U located: quadrant or axis? x-axis
7. Plot and label V at (2, -4).
8. Plot and label W at (-2, 3).
9. Write the coordinates of the origin. (0, 0)
10. Explain why (-3, 2) and (2, -3) are different points. The first number is x and the second is y, so the two points are in different positions.

Cartesian Coordinates Check-Up – Page 2

Name: _____

Date: _____

Year 6 Mathematics • AC9M6SP02

Describe coordinate changes and justify your reasoning.

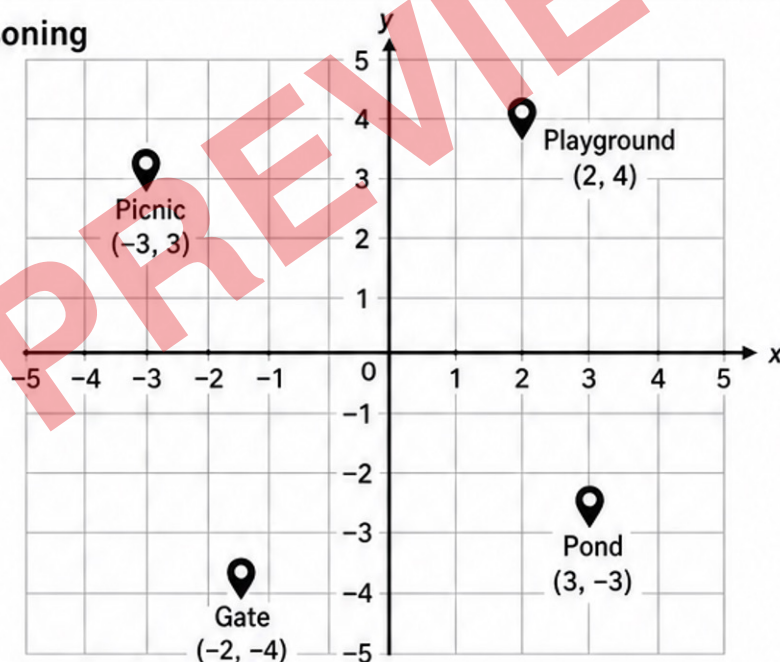
A. Move and reflect

Start point	Change	New point
$(-3, 2)$	5 units right	
$(4, 3)$	6 units down	
$(-2, -4)$	Reflect across the x-axis	
$(5, -1)$	Reflect across the y-axis	

B. Find the error

Mia says the point $(-5, 2)$ is in Quadrant IV. Is Mia correct? Explain and correct the quadrant.

C. Park map reasoning



1. Which place is in Quadrant III?

2. Describe the coordinate change from Picnic to Playground.

3. The gate moves 4 units right. What are its new coordinates?

I checked x before y: Yes / Not yet

Cartesian Coordinates Check-Up – Page 2

ANSWERS

Date: _____

Year 6 Mathematics • AC9M6SP02

Describe coordinate changes and justify your reasoning.

A. Move and reflect

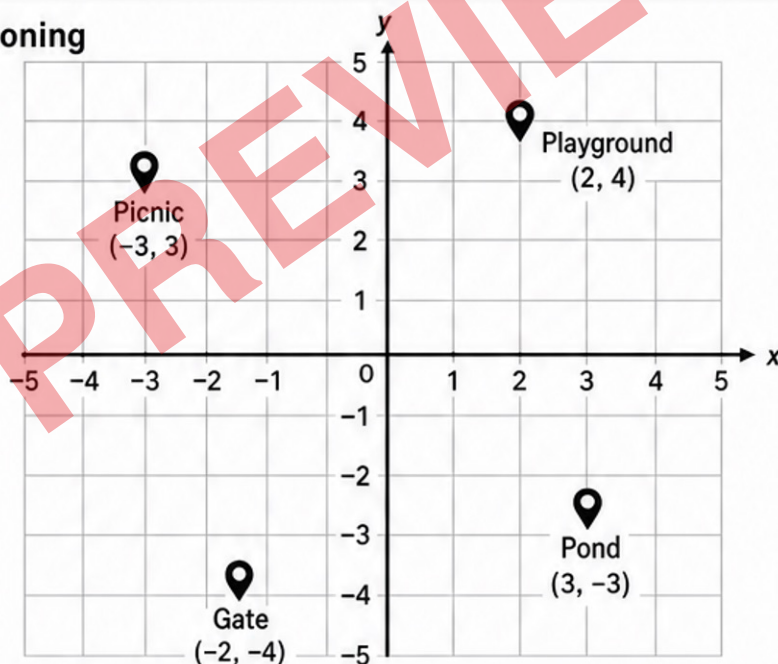
Start point	Change	New point
$(-3, 2)$	5 units right	$(2, 2)$
$(4, 3)$	6 units down	$(4, -3)$
$(-2, -4)$	Reflect across the x-axis	$(-2, 4)$
$(5, -1)$	Reflect across the y-axis	$(-5, -1)$

B. Find the error

Mia says the point $(-5, 2)$ is in Quadrant IV. Is Mia correct? Explain and correct the quadrant.

No. The x-coordinate is negative and the y-coordinate is positive, so $(-5, 2)$ is in Quadrant II.

C. Park map reasoning



1. Which place is in Quadrant III?

Gate.

2. Describe the coordinate change from Picnic to Playground.

Move 5 units right and 1 unit up.

3. The gate moves 4 units right. What are its new coordinates?

$(2, -4)$.

I checked x before y: Yes ☒ Not yet ☐

Student: _____ Date: _____

AC9M6SP02

Cartesian Coordinates Year 6 Rubric

Criteria	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
1 Ordered pairs	Needs support to read x and y.	Reads some ordered pairs.	Reads ordered pairs accurately.	Reads and checks ordered pairs accurately.	Explains coordinate order and detects errors.
2 Plotting and locating	Plots with significant support.	Plots some points correctly.	Plots and locates points accurately.	Plots efficiently and checks positions.	Creates and verifies complex plotted designs.
3 Four quadrants	Recognises one quadrant.	Names some quadrants.	Uses all four quadrants correctly.	Classifies points, axes and origin accurately.	Justifies locations using coordinate signs.
4 Coordinate changes	Needs support to describe moves.	Describes simple horizontal or vertical moves.	Updates coordinates after horizontal and vertical moves.	Explains which coordinate changes and why.	Generalises movement and reflection rules.
5 Reasoning and communication	Gives limited working.	Gives a partly clear explanation.	Uses correct notation and clear reasoning.	Justifies answers with precise mathematical language.	Compares strategies and communicates insightfully.

Overall judgement:

☐

BEGINNING

☐

DEVELOPING

☐

ACHIEVING

☐

CONFIDENT

☐

EXCEEDING

Teacher feedback: _____

Why coordinates?

Coordinates describe an exact position on a plane.
They are used in maps, games, design and data.
By the end, you will read, plot and move points.



Meet the plane

The x-axis runs horizontally.

The y-axis runs vertically.

The axes meet at the origin: $(0, 0)$.



Across first

An ordered pair is written (x, y) .

Move across to x first.

Then move up or down to y .



Four quadrants

I: (+, +) II: (-, +)

III: (-, -) IV: (+, -)

Points on an axis are not in a quadrant.



Read a point

For $(-4, 3)$:

1. Move 4 units left.

2. Move 3 units up.

The point is in Quadrant II.



Plot a point

To plot $(3, -2)$:

1. Start at the origin.
2. Move 3 units right.
3. Move 2 units down.



Points on axes

If $x = 0$, the point lies on the y -axis.

If $y = 0$, the point lies on the x -axis.

The origin lies on both axes.



Move horizontally

A horizontal move changes x only.
 $(-3, 2)$ moved 5 right becomes $(2, 2)$.



Move vertically

A vertical move changes y only.
 $(4, 3)$ moved 6 down becomes $(4, -3)$.



Reflect in x-axis

The x-coordinate stays the same.

The sign of y changes.

$(-2, -4)$ becomes $(-2, 4)$.



Reflect in y-axis

The y-coordinate stays the same.

The sign of x changes.

$(5, -1)$ becomes $(-5, -1)$.



Coordinate challenge

Where would you plot $(-3, 4)$?

Which quadrant contains $(2, -5)$?

How does $(1, 3)$ change after 4 units left?



Accuracy checklist

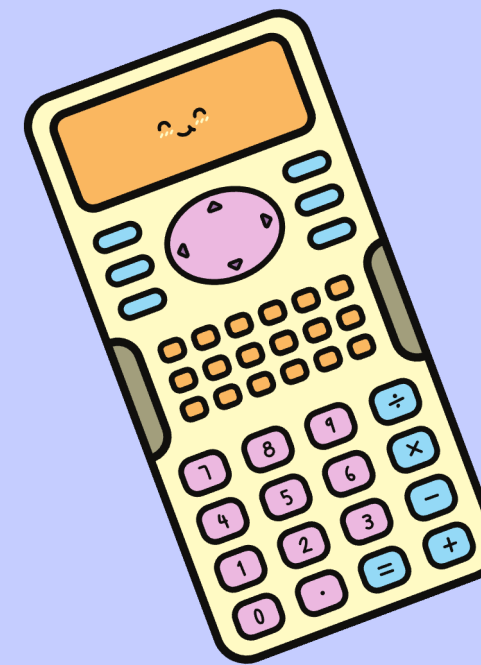
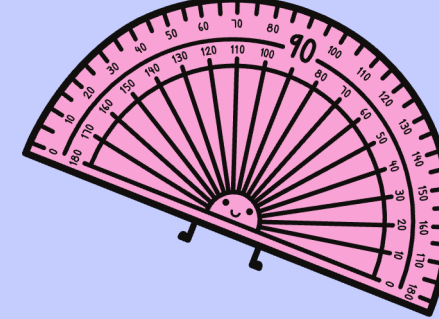
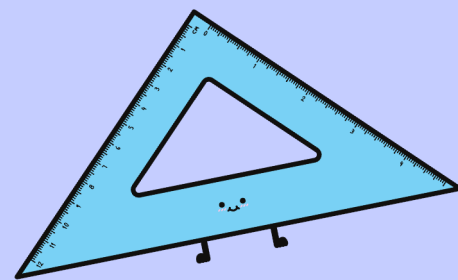
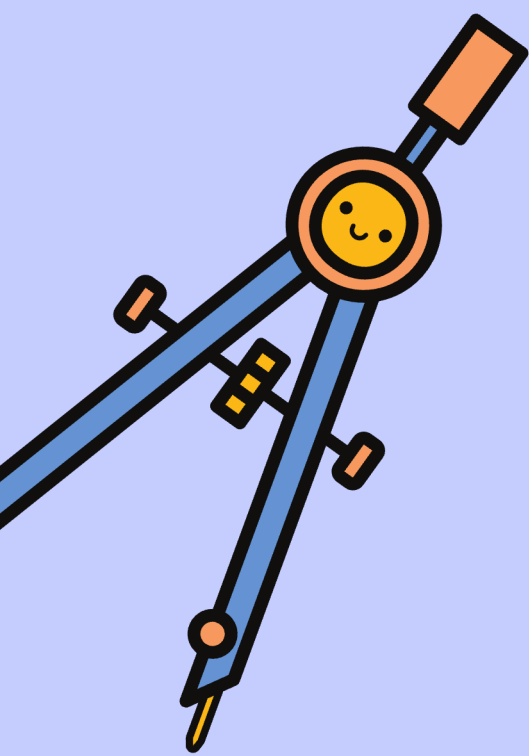
Check **x** before **y**.

Check every **minus** sign.

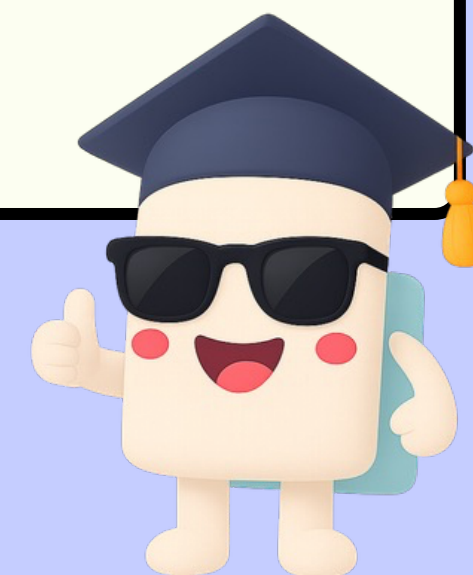
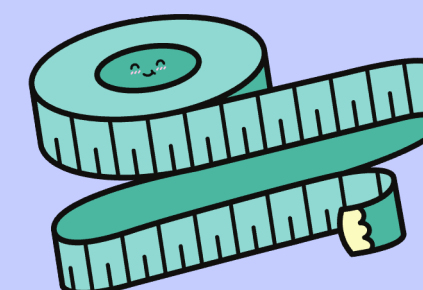
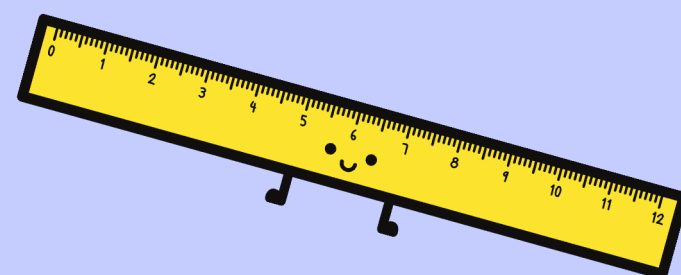
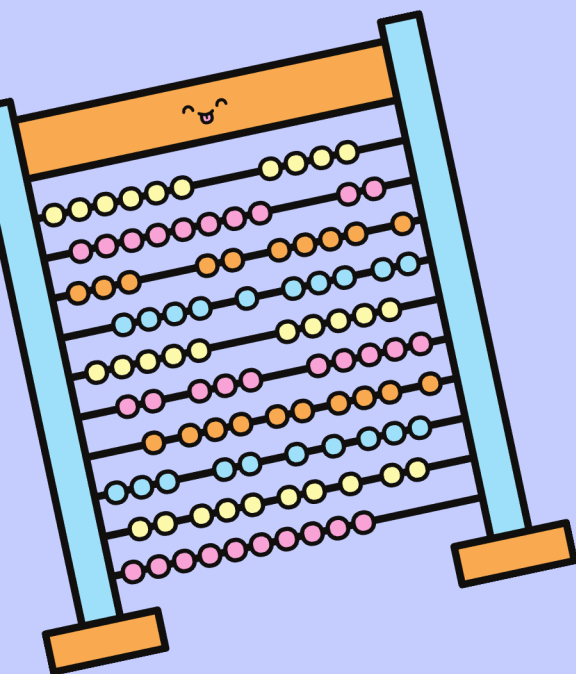
Name the quadrant or axis.

Re-read the movement direction.





Well Done!



Question 1

What are the coordinates of the origin?

- A. (1, 0)
- B. (0, 1)
- C. (0, 0)
- D. (-1, -1)



Answer I

c. $(0, 0)$

The axes meet at the origin.



Question 2

True or false?

In an ordered pair, the first number is the y-coordinate.



Answer 2

False.

The first number is x and the second number is y .



Question 3

Which quadrant contains $(-4, 5)$?



Answer 3

Quadrant II.

The x-coordinate is negative and y is positive.



Question 4

Which point lies on the x-axis?

- A. (0, 6)
- B. (6, 0)
- C. (-2, 4)
- D. (3, -5)



Answer 4

B. (6, 0)

A point lies on the x-axis when $y = 0$.



Question 5

Move $(-2, 3)$ five units right.
What is the new ordered pair?



Answer 5

$(3, 3)$

Only the x-coordinate changes.



Question 6

Reflect $(4, -2)$ across the y -axis.

- A. $(4, 2)$
- B. $(-4, -2)$
- C. $(-4, 2)$
- D. $(2, -4)$



Answer 6

B. $(-4, -2)$

A y-axis reflection changes the sign of x.



Question 7

True or false?

The point $(0, -5)$ is in Quadrant IV.



Answer 7

False.

Because $x = 0$, the point is on the y -axis.



Question 8

Move $(3, 4)$ six units down.
What is the new ordered pair?



Answer 8

$(3, -2)$

Only the y-coordinate changes.



Question 9

Which sign pattern describes Quadrant III?

- A. $(+, +)$
- B. $(-, +)$
- C. $(-, -)$
- D. $(+, -)$



Answer 9

C. $(-, -)$

Both coordinates are negative in Quadrant III.



Question 10

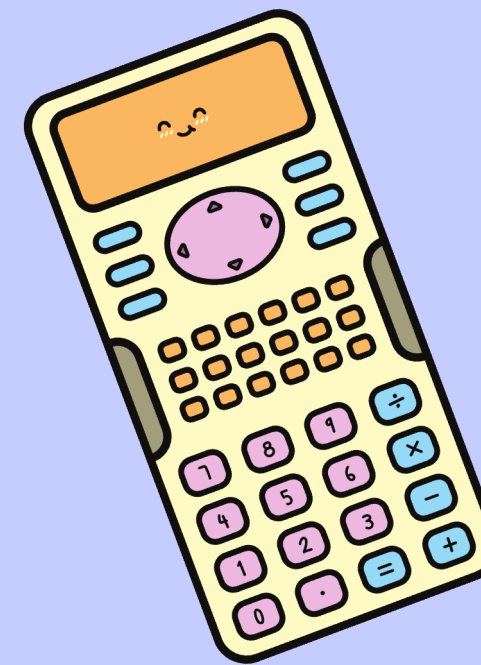
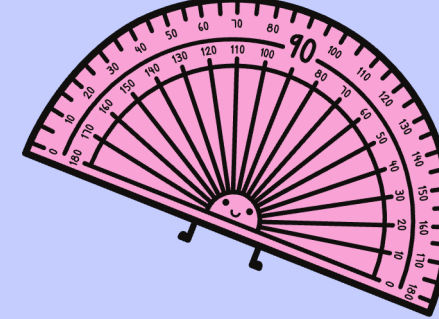
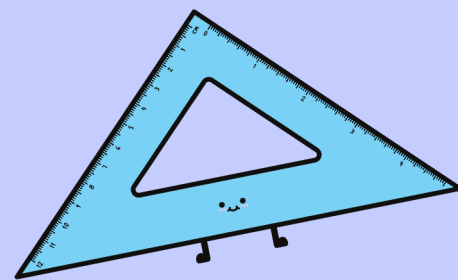
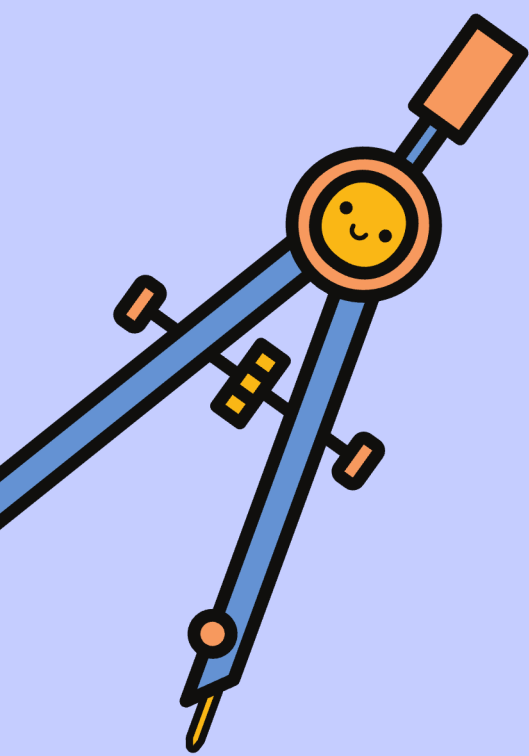
Why are $(-3, 2)$ and $(2, -3)$ different points?



Answer 10

The coordinate order changes the location.
 $(-3, 2)$ is in Quadrant II; $(2, -3)$ is in Quadrant IV.





Great Work!

