Graph on the Coordinate Plane

Lesson 9-1

Name: _____ Date: _____ Class: _____

Key Vocabulary

Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

A grid with a horizontal line (x-axis) crossing a vertical line (y-axis), making four sections

Coordinate plane

A grid with a line going across and a line going up that cross.

(3, 5) means move right 3 from the origin, then up 5

Ordered pair

Two numbers (x, y) that tell where a point is on a grid.

The starting point at the center where both axes cross — (0, 0)

Origin

The point (0, 0) where the two grid lines cross.

I (+,+) top-right, II (-,+) top-left, III (-,-) bottom-left, IV (+,-) bottom-right

Quadrant

One of the four parts of a coordinate grid.

(3, 2) reflected over the x-axis becomes (3, -2) — same x, opposite y

Reflection

A flipped, mirror image across a line.

..., -3, -2, -1, 0, 1, 2, 3, ...

Integer

Whole numbers and their opposites, like -2, -1, 0, 1, 2.

Key Ideas & Notes

- Captain Vega left a treasure map, but instead of an 'X marks the spot,' she hid the directions as ordered pairs!
- To find the treasure, you need to plot each point on the coordinate plane and connect them in order.
- The first clue says: Start at (2, 1), then go to (5, 4), then (8, 1).
- Plot Captain Vega's treasure map points and connect them to reveal the path!

Think About It

- What shape will the three points make when connected?
- Which number tells you how far right/left? Which tells you up/down?
- Why is the ORDER in an ordered pair important?

My Notes

Guided Examples

Example 1

Which ordered pair names a point 3 units right and 7 units up from the origin?

Solution: The first coordinate is horizontal (right 3), the second is vertical (up 7). So (3, 7).

Answer: A. (3, 7)

Example 2

What are the coordinates of the origin?

Solution: The origin is where the x-axis and y-axis cross, at (0, 0).

Answer: A. (0, 0)

Example 3

A point is at (6, 2). What does the 6 tell you?

Solution: The first number (x-coordinate) tells you horizontal movement. 6 means go right 6 units from the origin.

Answer: A. Move 6 units to the right

Write About the Math

The Writing Revolution

I can explain my work using the words coordinate plane, ordered pair, origin, and quadrant.

1. Kernel Sentence

subject + verb

Model: Coordinate plane is a grid with a line going across and a line going up that cross.
Plano cartesiano es una cuadrícula con una línea horizontal y una vertical que se cruzan.

Write a kernel sentence about coordinate plane. Use a subject and a verb.
Escribe una oración base sobre plano cartesiano. Usa un sujeto y un verbo.

2. Sentence Expansion

because · but · so

Kernel: Coordinate plane matters in math
Plano cartesiano importa en matemáticas

Expand the kernel three ways. Add a reason, a contrast, and a result.

because / ***porque***

Coordinate plane matters in math because ____.
Plano cartesiano importa en matemáticas porque ____.

but / ***pero***

Coordinate plane matters in math, but ____.
Plano cartesiano importa en matemáticas, pero ____.

so / ***entonces***

Coordinate plane matters in math, so ____.
Plano cartesiano importa en matemáticas, entonces ____.

3. Sentence Types

4 ways to write a math idea

Statement
Afirmación

Tell one true fact about coordinate plane.
Di un hecho verdadero sobre coordinate plane.

Coordinate plane ____.

Question
Pregunta

Ask a question about coordinate plane.
Haz una pregunta sobre coordinate plane.

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about coordinate plane.
Muestra entusiasmo sobre coordinate plane.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

Tell a partner what to do with coordinate plane.
Dile a un compañero qué hacer con coordinate plane.

First, ____ .
Primero, ____ .

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4. Explain Your Reasoning

use a sentence starter

The first number tells me ____.
El primer número me dice ____.

The point is at ____.
El punto está en ____.

I use grids when ____.
Uso cuadrículas cuando ____.

Try It

Solve on your own. Check the answer key when you are done.

1. What are the coordinates of the origin?

A. (0, 0)

B. (1, 1)

C. (0, 1)

D. (1, 0)

Show your work:

2. A point is at (6, 2). What does the 6 tell you?

A. Move 6 units to the right

B. Move 6 units up

C. Move 6 units to the left

D. The point is in Quadrant 6

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

A student says that (3, 5) and (5, 3) are the same point because they use the same numbers. Is the student correct? Explain why or why not, and describe where each point is located on the coordinate plane.

Sentence starter: The student is ____ because (3, 5) means ____ while (5, 3) means ____. The ORDER matters because ____.

Show your work:

Reflect — Exit Ticket

Point P is located 6 units right and 3 units up from the origin. What ordered pair names point P?

A. (6, 3)

B. (3, 6)

C. (6, 0)

D. (0, 3)

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. (0, 0) — *The origin is where the x-axis and y-axis cross, at (0, 0).*
2. **Try It 2:** A. Move 6 units to the right — *The first number (x-coordinate) tells you horizontal movement. 6 means go right 6 units from the origin.*
3. **Exit Ticket:** A. (6, 3) — *Right 6 = x-coordinate of 6, Up 3 = y-coordinate of 3. The ordered pair is (6, 3).*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Coordinate plane is a grid with a line going across and a line going up that cross.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).