Rational Numbers and Coordinates

Lesson 9 Points in Four Quadrants

Standards 6.NS.C.6b, 6.NS.C.6c

Learning target I can plot ordered pairs in all four quadrants.

Materials Number lines, coordinate grids, rulers, colored pencils.

Lesson Flow 50 Minutes

0–5 Activate prior knowledge. Read the learning target. Ask students what they already know about points in four quadrants. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Start at the origin. Move horizontally by x, then vertically by y. Quadrant signs are I (+,+), II (-,+), III (-,-), IV (+,-). A point on an axis belongs to no quadrant. Work through the two examples on the attached instruction page. Have students name the first step before showing it.

17–22 Guided practice. Revisit worked Example 2 with its solution covered. Students propose the next step and explain why it is valid; uncover and compare with the worked solution.

22–45 Independent classwork. Assign the attached 10 questions in order. Check items 1–3 for entry-level understanding, 4–6 for connected procedures, 7–8 for representation and explanation, and 9–10 for application or justification. Ask students to use the instruction-page notes area or extra grids for longer work.

45–50 Check understanding. Use classwork question 10 as an exit discussion: Plot P(7/2, -3) on a coordinate plane and name its quadrant. Then plot Q on the y-axis at the same height and name its coordinates. Compare the result with the answer key and ask a student to defend the method.

Support and Extension

Support Model item 1 together with the listed tools, then have students attempt item 2 independently. Watch order versus absolute value, coordinate order, and which sign changes in a reflection.

Extension Ask students to solve a final item another way, draw a second representation, or create a related problem with a checked answer.

Next step Record which students can explain the target independently. Begin the next teaching session with a brief correction for any recurring error.

Name _____ Date _____

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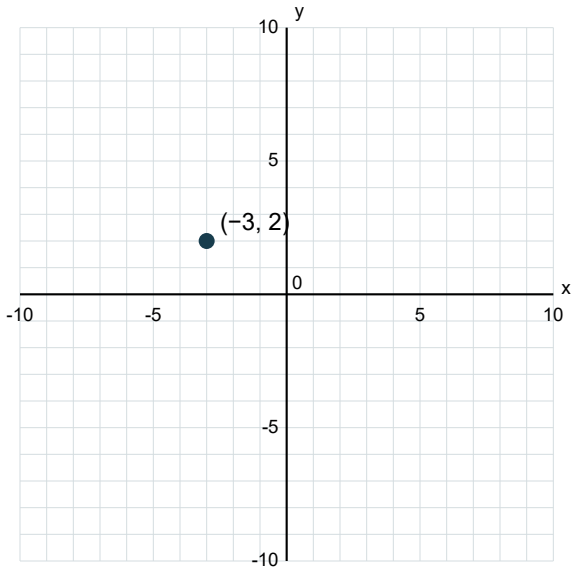
Learn and Discuss

Start at the origin. Move horizontally by x, then vertically by y. Quadrant signs are I (+,+), II (-,+), III (-,-), IV (+,-). A point on an axis belongs to no quadrant.

Example 1 Plot P(4, -6) on a coordinate plane and name its quadrant.
Solution Quadrant IV. Move 4 right, then 6 down.
Example 2 Plot P(4, -3) on a coordinate plane and name its quadrant. Then plot Q on the y-axis at the same height and name its coordinates.
Solution Quadrant IV; Q(0, -3). Move 4 right, then 3 down.

Classwork Show Your Work

Complete the 10 problems on the following page. Refer to the examples, draw models, and check your results.



Model a point (−3, 2) means move 3 left and 2 up from the origin. Label the axes and scale before plotting.

Lesson 9 Points in Four Quadrants

Name _____ Show calculations, models, and units.

1. Plot P(-2, -3) on a coordinate plane and name its quadrant.

2. Plot P(7, -5) on a coordinate plane and name its quadrant.

3. Plot P(-7, 4) on a coordinate plane and name its quadrant.

4. Plot P(4, -2) on a coordinate plane and name its quadrant.

5. Plot P(-6, -4) on a coordinate plane and name its quadrant.

6. Plot P(5, 4) on a coordinate plane and name its quadrant.

7. Plot P(-7/2, -3/2) on a coordinate plane and name its quadrant. Then plot Q on the y-axis at the same height and name its coordinates.

8. Plot P(4, -7/2) on a coordinate plane and name its quadrant. Then plot Q on the y-axis at the same height and name its coordinates.

9. Plot P(-5/2, 5/2) on a coordinate plane and name its quadrant. Then plot Q on the y-axis at the same height and name its coordinates.

10. Plot P(7/2, -3) on a coordinate plane and name its quadrant. Then plot Q on the y-axis at the same height and name its coordinates.

Points in Four Quadrants

Rational Numbers and Coordinates

1. Quadrant III
Reasoning Move 2 left, then 3 down.

2. Quadrant IV
Reasoning Move 7 right, then 5 down.

3. Quadrant II
Reasoning Move 7 left, then 4 up.

4. Quadrant IV
Reasoning Move 4 right, then 2 down.

5. Quadrant III
Reasoning Move 6 left, then 4 down.

6. Quadrant I
Reasoning Move 5 right, then 4 up.

7. Quadrant III; Q(0, -3/2)
Reasoning Move 7/2 left, then 3/2 down.

8. Quadrant IV; Q(0, -7/2)
Reasoning Move 4 right, then 7/2 down.

9. Quadrant II; Q(0, 5/2)
Reasoning Move 5/2 left, then 5/2 up.

10. Quadrant IV; Q(0, -3)
Reasoning Move 7/2 right, then 3 down.