

Plotting Points and Shapes on the Coordinate Plane

Grade 6 math · Worksheet · Standards: 6.NS.C.6b, 6.NS.C.6c, 6.NS.C.8, 6.G.A.3

Name: _____ Date: _____ Class: _____

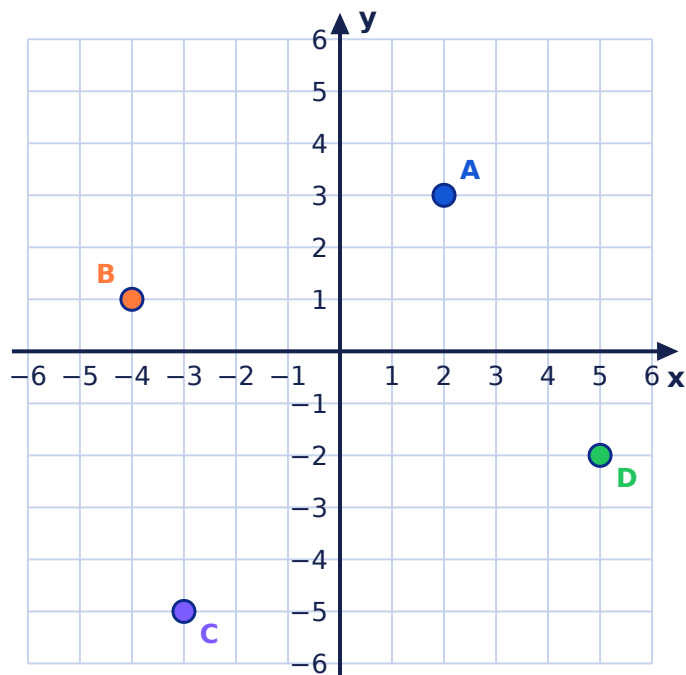
These 20 problems follow standards 6.NS.C.6b, 6.NS.C.6c, 6.NS.C.8 and 6.G.A.3. Students name quadrants, read and write ordered pairs, reflect points across the axes, and find distances along horizontal and vertical lines.

Later problems draw polygons from their vertices and find side lengths. The final six mix maps, rectangles and reflection, so sketch a grid before computing.

Standards: 6.NS.C.6b, 6.NS.C.6c, 6.NS.C.8, 6.G.A.3 · **Level:** Grade 6

Problem 1 Reading coordinates (easy)

Write the ordered pair for each point A, B, C and D.



Points A, B, C and D.

Problem 2 Naming quadrants (easy)

Name the quadrant of each point: $(7, -3)$, $(-2, -8)$, $(-6, 4)$, $(1.5, 9)$.

Problem 3 Points on the axes (easy)

Describe where each point lies: $(0, -4)$, $(5, 0)$, $(-3, 0)$, $(0, 6)$.

Problem 4 Reflecting a point (easy)

A kite icon sits at $(8, 3)$. Where does it land when flipped over the x -axis, and, separately, when flipped over the y -axis?

Problem 5 Two reflections (easy)

- Reflect $(-6, 2)$ across the y -axis.
- Reflect $(-7, -3)$ across the x -axis.

Problem 6 Horizontal distance (medium)

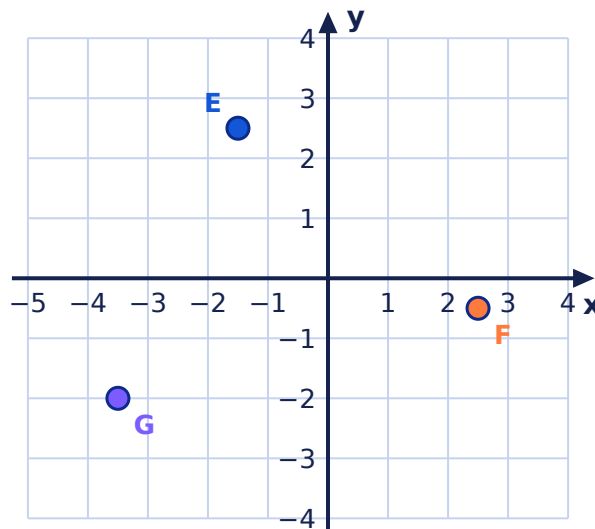
A drone flies straight from $(-9, 6)$ to $(5, 6)$. How many units does it travel?

Problem 7 Vertical distance, same signs (medium)

Find the distance between $(5, -9)$ and $(5, -2)$.

Problem 8 Rational coordinates (medium)

Write the coordinates of points E, F and G, then name the quadrant or axis of each.



Points E, F and G (each grid line is 1 unit).

Problem 9 Two reflections in a row (medium)

The point $(-3, 4)$ is reflected across the x -axis, and the result is reflected across the y -axis. Find the final point.

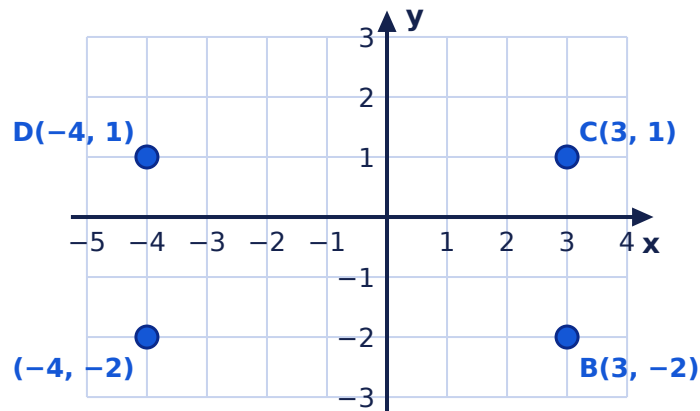
Problem 10 Finding missing coordinates (medium)

- The point $(3, y)$ is the reflection of $(3, -8)$ across the x -axis. Find y .

b. The point $(x, 2)$ is the reflection of $(-5, 2)$ across the y -axis. Find x .

Problem 11 Rectangle side lengths (medium)

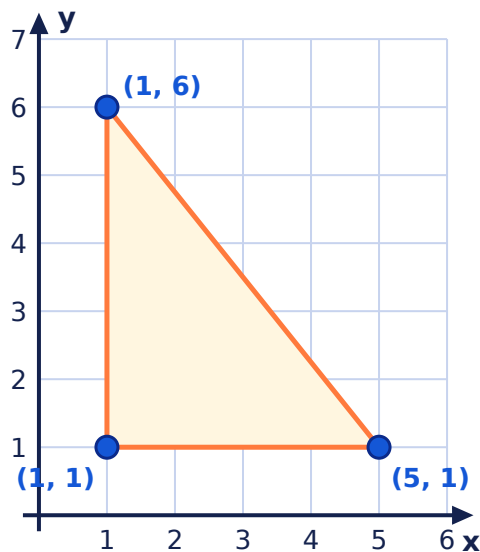
Rectangle ABCD has the vertices shown. Find the length of each side and the perimeter.



Vertices of rectangle ABCD are plotted; join them in order.

Problem 12 Right triangle legs (medium)

Find the lengths of the vertical and horizontal sides of the triangle.



Right triangle with vertices $(1, 1)$, $(1, 6)$ and $(5, 1)$.

Problem 13 Trail map (medium)

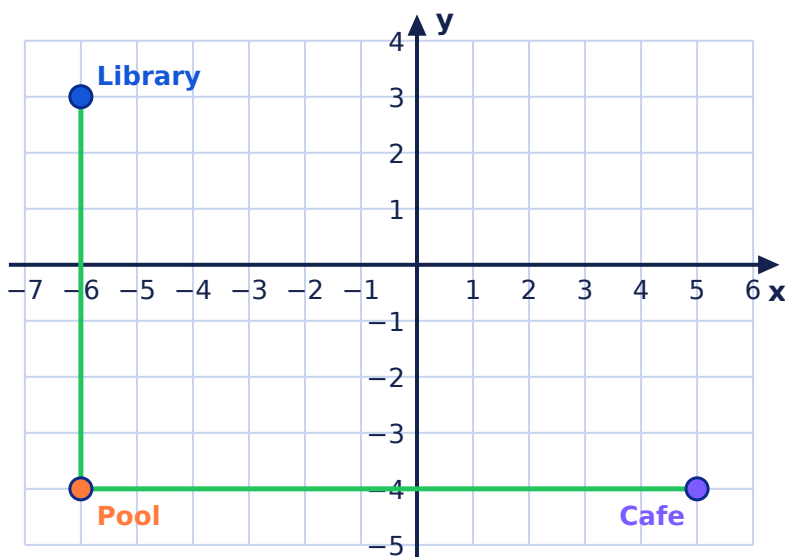
A trail starts at $(-5, -2)$ and runs straight east to a campsite at $(3, -2)$. How long is the trail if each unit is 1 mile?

Problem 14 Reflections across the y-axis (medium)

Which pairs are reflections of each other across the y -axis? (a) $(3, -5)$ and $(-3, -5)$ (b) $(2, 4)$ and $(-2, -4)$ (c) $(-6, 0)$ and $(6, 0)$

Problem 15 Park walk (medium)

On the park map, a walker goes from the library straight to the pool, then straight to the cafe. How many blocks does she walk in all?



Park map: library, pool and cafe (each grid square is one block).

Problem 16 Rectangle perimeter and area (hard)

A rectangle has vertices $A(-5, 1)$, $B(2, 1)$, $C(2, -4)$ and $D(-5, -4)$. Find its side lengths, perimeter and area.

Problem 17 Square garden (hard)

Three vertices of a square garden are $(-2, -2)$, $(4, -2)$ and $(4, 4)$. Find the fourth vertex, the side length, and the vertices of the garden's reflection across the y-axis.

Problem 18 Parallelogram heights (hard)

A parallelogram has vertices $(-6, 2)$, $(-1, 2)$, $(1, -2)$ and $(-4, -2)$. Find the length of each horizontal side and the vertical distance between them.

Problem 19 Reflecting a triangle (hard)

Triangle PQR has vertices $P(1, 2)$, $Q(4, 2)$ and $R(4, 6)$. Reflect it across the y-axis and name the new vertices. Do any side lengths change? Explain.

Problem 20 Explain the error (hard)

Marcus says $(-4, 0)$ is in Quadrant II. Explain his mistake, then give one point in Quadrant II with y-coordinate 7.