

Grade 6 · The Coordinate Plane · Worksheet Answer Key

Common Core 6.NS.C.6b, 6.NS.C.6c, 6.NS.C.8, 6.G.A.3 · mathovore.fr

This answer key gives a full worked solution for each of the 10 coordinate plane problems. It shows how each distance is found with absolute values, and the figures display the plotted points, reflections, and polygons so students can check their graphs.

Grade 6 Common Core: 6.NS.C.6b · 6.NS.C.6c · 6.NS.C.8 · 6.G.A.3

Problem 1: Name the quadrant

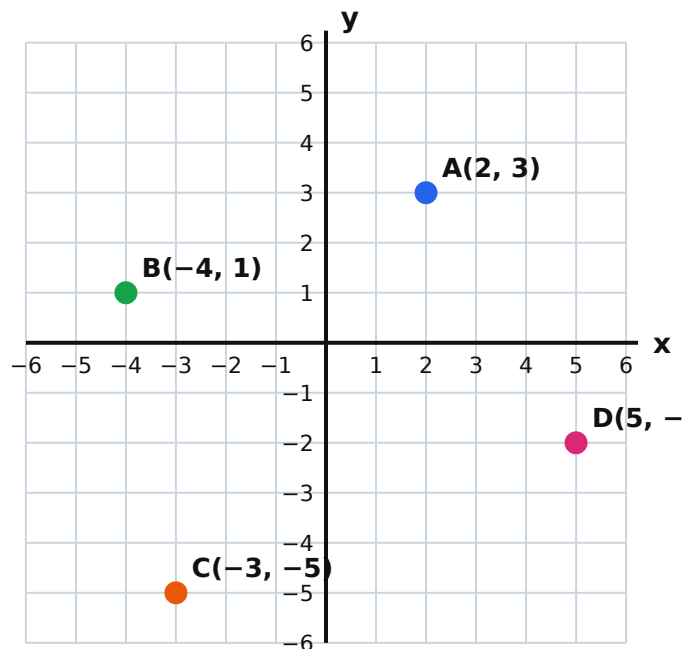
Check the signs of x and y .

a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV e) On the y-axis (no quadrant), because $x=0$.

Problem 2: Plot the points

For each point, move along the x-axis first, then up or down. A : 2 right, 3 up (Quadrant I). B : 4 left, 1 up (II). C : 3 left, 5 down (III). D : 5 right, 2 down (IV).

The four points are plotted as shown.



The four plotted points.

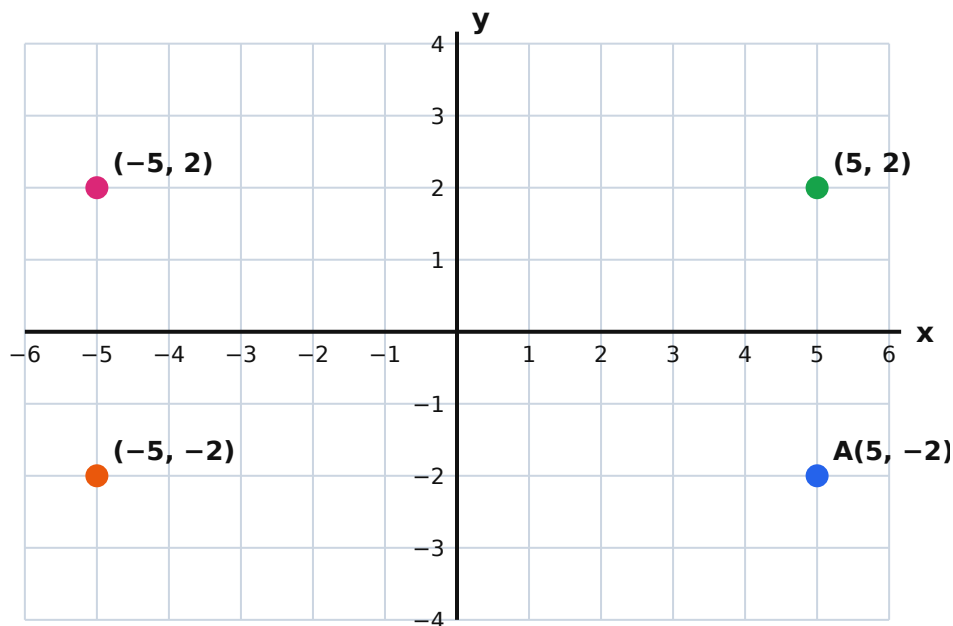
Problem 3: Read ordered pairs

Read the x-coordinate along the x-axis first, then the y-coordinate.

$P(-3,2)$ $Q(4,3)$ $R(-2,-4)$ $S(5,-1)$

Problem 4: Reflect a point

- a) Across the x-axis, change the sign of y : $(5,2)$.
b) Across the y-axis, change the sign of x : $(-5,-2)$.
c) First $(5,2)$, then across the y-axis: $(-5,2)$.
a) $(5,2)$ b) $(-5,-2)$ c) $(-5,2)$



A and its reflections.

Problem 5: Points that mirror each other

The x-coordinates -6 and 6 are opposites, and the y-coordinates are both 4 . So B is the reflection of A across the y-axis.

Distance: the points are on opposite sides of the y-axis, so $|-6| + |6| = 6 + 6 = 12$.

Opposite x-coordinates, same y-coordinate; line of reflection is the y-axis; distance 12 units.

Problem 6: Distance on a horizontal line

The y-coordinates are equal, so use the x-coordinates. They are on opposite sides of 0:
 $|-7|+|2|=7+2=9$.

9 units

Problem 7: Distance on a vertical line

a) Same x-coordinate, so use y: -8 and -3 are on the same side of 0. $|-8|-|-3|=8-3=5$.

b) 6 and -5 are on opposite sides of 0. $|6|+|-5|=6+5=11$.

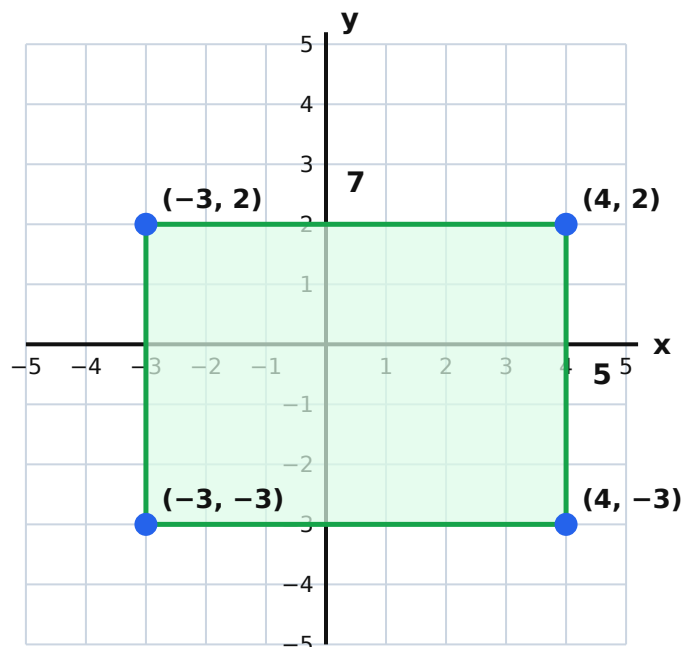
a) 5 units b) 11 units

Problem 8: Draw a rectangle

Top side: from $x=-3$ to $x=4$, $|-3|+|4|=7$. Right side: from $y=2$ to $y=-3$, $|2|+|-3|=5$.
Opposite sides are equal, so the bottom is 7 and the left is 5.

Perimeter: $7+5+7+5=24$.

Sides 7, 5, 7, 5 units; perimeter 24 units.



Rectangle: 7 units by 5 units.

Problem 9: Walking route

Library to school: same x-coordinate -4 . $|5|+|-2|=5+2=7$ blocks.

School to park: same y-coordinate -2 . $|-4|+|5|=4+5=9$ blocks.

Total: $7+9=16$.

7 blocks, 9 blocks, 16 blocks in all.

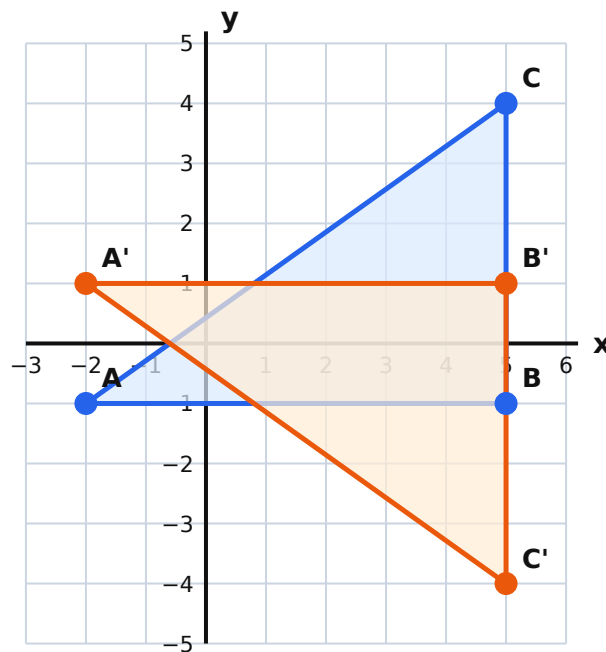
Problem 10: Triangle and its reflection

a) AB : same y, $|-2|+|5|=7$. BC : same x, $|4|+|-1|=5$.

b) Change the sign of each y-coordinate: $A'(-2,1)$, $B'(5,1)$, $C'(5,-4)$.

c) $A'B'$: $|-2|+|5|=7$. $B'C'$: $|1|+|-4|=5$. The lengths are the same as in part a, because a reflection does not change distances.

a) 7 and 5 b) $A'(-2,1)$, $B'(5,1)$, $C'(5,-4)$ c) 7 and 5, equal to part a



Triangle ABC and its reflection.