

Grade 8 - Distance on the Coordinate Plane - Answer Key

Common Core 8.G.B.8 · maths-pdf.fr/en/

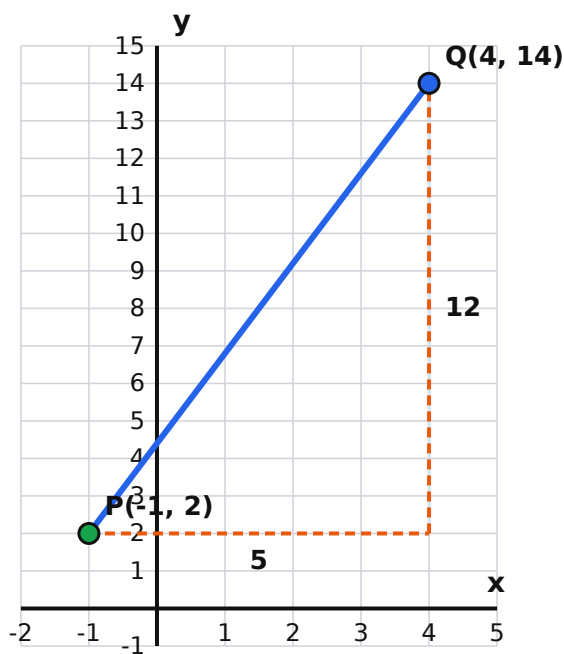
This answer key gives a full worked solution for each of the 20 problems on the distance on the coordinate plane worksheet (Common Core 8.G.B.8). Compare each step with your own work, not only the final answer, and note any step where your method differed.

Grade 8 · Common Core State Standards: **8.G.B.8**

Exercise 1 - Distance with a triangle

Legs: $4 - (-1) = 5$ and $14 - 2 = 12$.

$$d = \sqrt{25 + 144} = 13.$$



$$PQ = 13.$$

Exercise 2 - From the origin

$$d = \sqrt{5^2 + 12^2} = \sqrt{169} = 13.$$

13

Exercise 3 - Negative coordinates

Legs: $5 - (-3) = 8$ and $7 - 1 = 6$.

$$d = \sqrt{64 + 36} = 10.$$

10

Exercise 4 - Larger numbers

Legs: 5 and $8 - (-4) = 12$.

$$d = \sqrt{25 + 144} = 13.$$

13

Exercise 5 - Not a whole number

Legs: 6 and 2.

$$d = \sqrt{36 + 4} = \sqrt{40} \approx 6.3.$$

about 6.3

Exercise 6 - Horizontal segment

The points have the same y-coordinate, so subtract: $6 - (-4) = 10$.

10

Exercise 7 - Vertical segment

$$4 - (-5) = 9.$$

9

Exercise 8 - Triangle perimeter

$$AB = 6, AC = 8, BC = \sqrt{36 + 64} = 10.$$

24

Exercise 9 - Right triangle test

Sides: 3 (horizontal), 4 (vertical), and $\sqrt{9+16} = 5$. Also $3^2 + 4^2 = 5^2$.

Yes

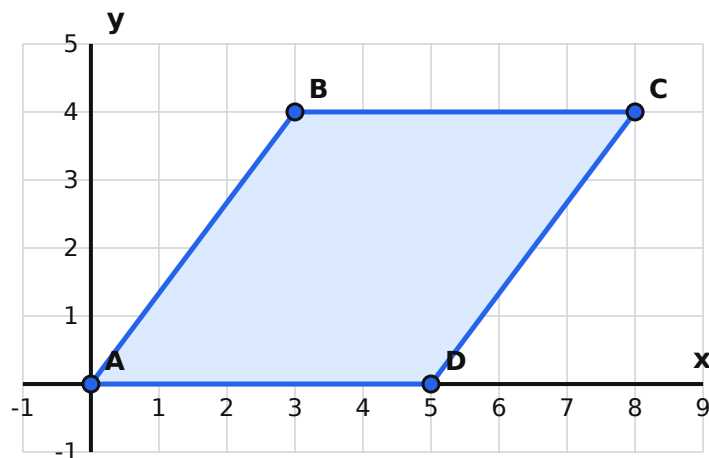
Exercise 10 - Closer point

$$\sqrt{9+25} = \sqrt{34} \approx 5.83 \text{ and } \sqrt{16+16} = \sqrt{32} \approx 5.66.$$

(4,4) is closer

Exercise 11 - Rhombus perimeter

$$AB = \sqrt{9+16} = 5, BC = 5, CD = \sqrt{9+16} = 5, DA = 5.$$



All sides are 5.

Exercise 12 - Find the missing coordinate

$$36 + y^2 = 100, \text{ so } y^2 = 64.$$

$$y = 8 \text{ or } y = -8$$

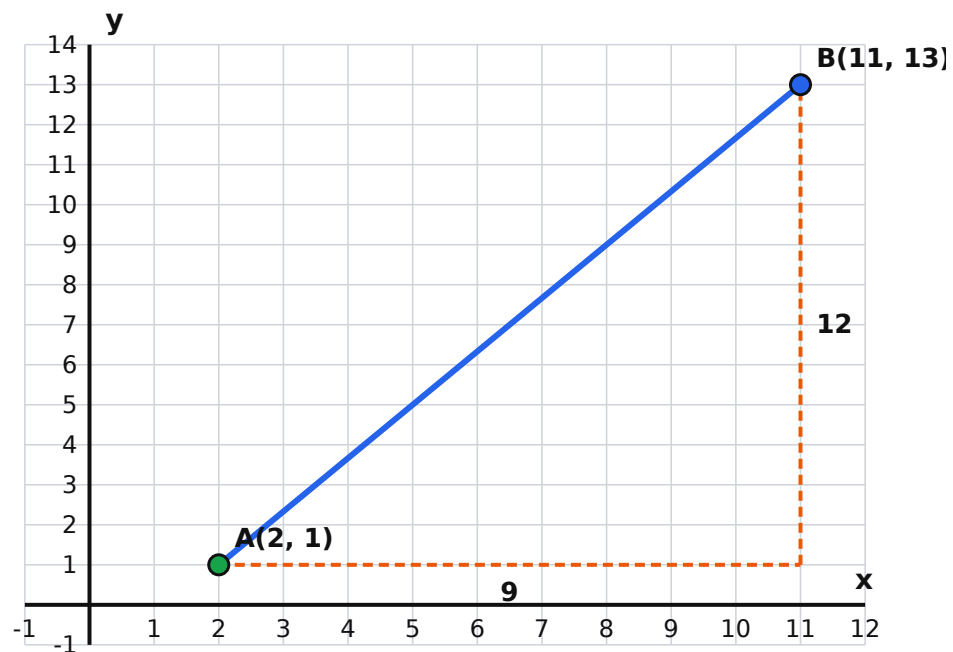
Exercise 13 - Rectangle diagonal

Legs: 6 and 8.

$$d = \sqrt{36 + 64} = 10.$$

10

Exercise 14 - Drone flight



AB = 15 miles.

Legs: 9 and 12.

$$d = \sqrt{81 + 144} = 15.$$

15 miles

Exercise 15 - Two cities

Legs: $6 - (-9) = 15$ and $4 - (-4) = 8$.

$$d = \sqrt{225 + 64} = \sqrt{289} = 17.$$

17 miles

Exercise 16 - Walk to the library

$$d = \sqrt{64 + 225} = 17.$$

17 blocks

Exercise 17 - Robot path

Legs: 5 and 12.

$$d = \sqrt{25 + 144} = 13.$$

13 feet

Exercise 18 - Compare routes

Two legs: $9 + 12 = 21$. Direct: $\sqrt{81 + 144} = 15$.

6 units shorter

Exercise 19 - Zip line

Legs: 16 and 12.

$$d = \sqrt{256 + 144} = \sqrt{400} = 20.$$

20 feet

Exercise 20 - Explain the formula

The change in x and the change in y are the legs of a right triangle, and the distance is the hypotenuse.

$$d^2 = (\Delta x)^2 + (\Delta y)^2$$