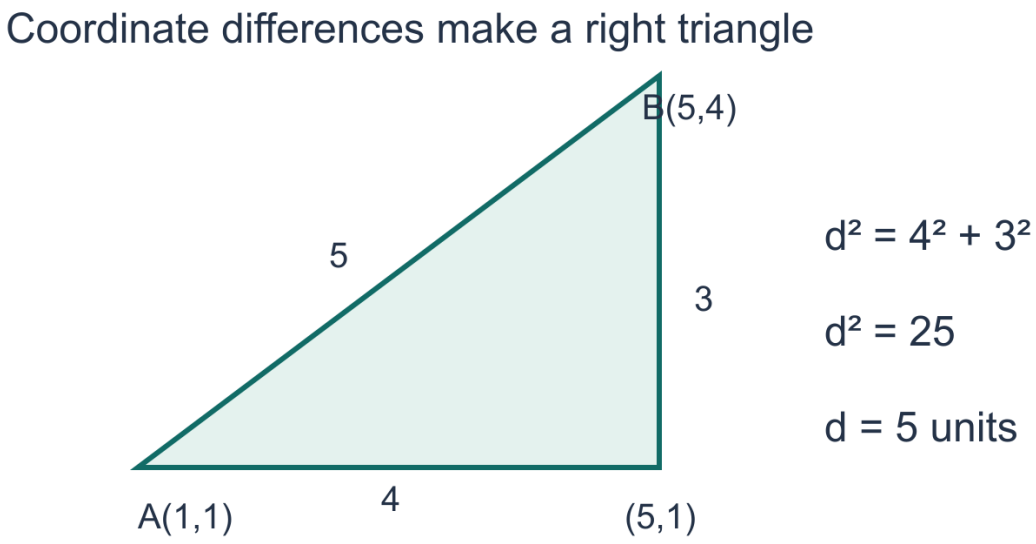
Distance between two points: build the right triangle

Grade 10 · Practice and answer pack

On a map grid, moving 3 units across and 4 units up takes a 7-unit route along the grid. The straight-line distance is only 5 units.

For points (x□,y□) and (x□,y□), distance = √[(x□−x□)² + (y□−y□)²]. The coordinate differences form the perpendicular sides of a right triangle.

Independent BananaLearn resource. Not an official exam paper or endorsed assessment.



The horizontal difference from (1,1) to (5,4) is four and vertical difference three. The direct distance is five.

Matching complete guide

bananalearn.com/learn/grade-10-coordinate-distance-formula.html

Try before looking at the answers

Name (optional): _____ Date: _____

Show your method or explain your choice. Work through a short group at a time. Questions are original practice, not a complete syllabus assessment.

1. (0,0) to (6,8)

2. (3,−2) to (3,5)

3. (−4,1) to (2,1)

4. (0,0) to (1,1)

5. Does reversing the points change distance?

6. (−3,−4) to (0,0)

7. (1,1) to (3,4)

8. (−2,5) to (4,5)

9. Points (x,0) and (0,3) are 5 units apart. Find x.

10. A(0,0), B(3,0), C(0,4): longest side?

11. Can distance be −7?

12. Why is $(5-2)^2$ not 5^2-2^2?

13. All coordinates double. What happens to distances?

Answers and reasoning

Compare the explanation as well as the answer. If a method is unclear, revisit the matching guide and try a changed example.

1. (0,0) to (6,8)

10 units

√(36 + 64) = 10.

2. (3,−2) to (3,5)

7 units

Vertical separation is 5 − (−2).

3. (−4,1) to (2,1)

6 units

The y-coordinates are equal.

4. (0,0) to (1,1)

√2 units

Exact distance is √(1 + 1).

5. Does reversing the points change distance?

No

The differences change sign but their squares do not.

6. (−3,−4) to (0,0)

5 units

√(9+16)=5.

7. (1,1) to (3,4)

√13 units

Differences 2 and 3 give 4+9.

8. (−2,5) to (4,5)

6 units

Horizontal separation only.

9. Points (x,0) and (0,3) are 5 units apart. Find x.

4 or −4

$x^2+9=25$.

10. A(0,0), B(3,0), C(0,4): longest side?

BC = 5

AB=3, AC=4 and $BC^2=9+16$.

11. Can distance be −7?

No

Distance is a non-negative length.

12. Why is $(5-2)^2$ not 5^2-2^2?

They are 9 and 21 respectively

The brackets require subtraction before squaring.

13. All coordinates double. What happens to distances?

They double

Both differences double; their squared sum quadruples and its root doubles.

Check understanding

• Have you subtracted matching coordinates inside brackets?

• Is the question about a direct distance or a route?

• Could a missing coordinate have two solutions?