

Grade 8 · Distance in the Coordinate Plane · Quiz

Common Core 8.G.B.8 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

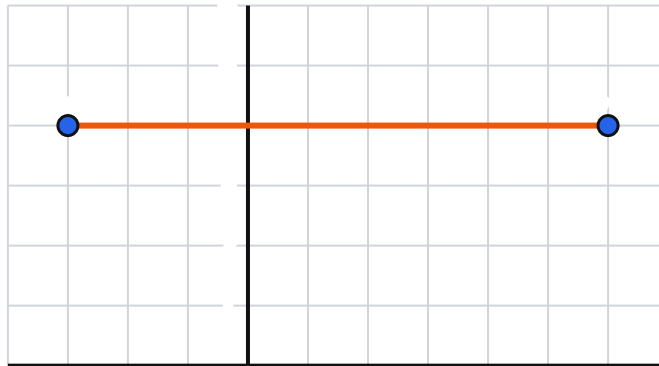
Ten multiple-choice questions on distance in the coordinate plane (8.G.B.8). Use legs, the Pythagorean Theorem and the distance formula to find lengths and perimeters. Choose the single best answer, then read the explanation to see which mistake each wrong choice matches.

Grade 8 Common Core: 8.G.B.8

Questions

Question 1

What is the distance between $(-3,4)$ and $(6,4)$?

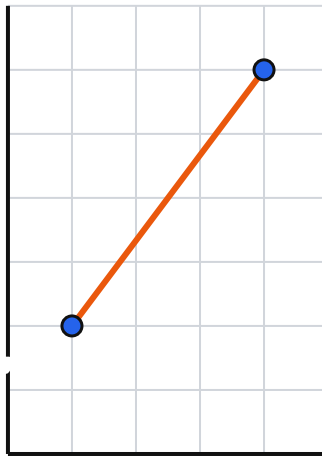


Two points on a horizontal line.

- A. 3 units
- B. 9 units
- C. 10 units
- D. 18 units

Question 2

What is the distance between $A(1,2)$ and $B(4,6)$?



Points A and B.

- A. 5 units
- B. 7 units
- C. 25 units
- D. 12 units

Question 3

What is the distance between $(-2, -3)$ and $(6, 3)$?

- A. 14 units
- B. 10 units
- C. 100 units
- D. 6 units

Question 4

What is the distance between $(1, 1)$ and $(4, 7)$, to the nearest tenth?

- A. 9.0 units
- B. 6.7 units
- C. 45.0 units
- D. 4.5 units

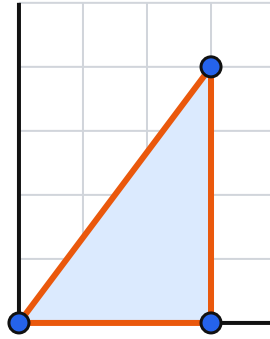
Question 5

Which expression gives the distance between $(2, 5)$ and $(-4, 1)$?

- A. $\sqrt{(-4+2)^2+(1+5)^2}$
- B. $(-4-2)^2+(1-5)^2$
- C. $\sqrt{(-4-2)^2-(1-5)^2}$
- D. $\sqrt{(-4-2)^2+(1-5)^2}$

Question 6

What is the perimeter of the triangle with vertices $(0,0)$, $(3,0)$ and $(3,4)$?



A triangle on a grid.

- A. 7 units
- B. 5 units
- C. 12 units
- D. 25 units

Question 7

Which point is exactly 10 units from the origin?

- A. $(6,6)$
- B. $(7,7)$
- C. $(6,8)$
- D. $(4,8)$

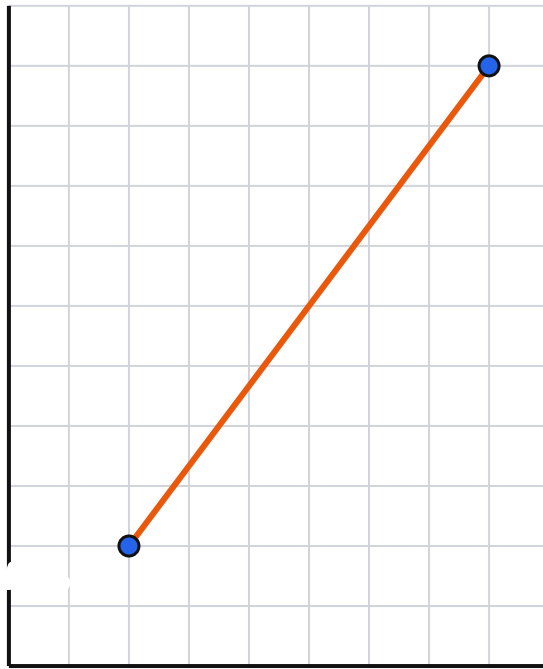
Question 8

The distance from $(1,1)$ to $(13,y)$ is 13 units, and y is greater than 1. What is y ?

- A. $y = 5$
- B. $y = 13$
- C. $y = 25$
- D. $y = 6$

Question 9

On a map, each grid unit is 5 miles. Town A is at $(2,2)$ and Town B is at $(8,10)$. How far apart are the towns?

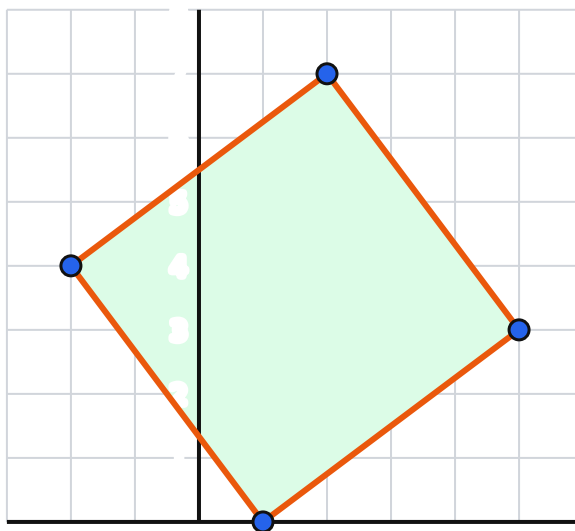


Two towns on a map.

- A. 10 miles
- B. 70 miles
- C. 50 miles
- D. 100 miles

Question 10

What is the perimeter of the tilted square with vertices $(1,0)$, $(5,3)$, $(2,7)$ and $(-2,4)$?



A tilted square on a grid.

- A. 20 units
- B. 28 units
- C. 25 units
- D. 10 units

Answer key

1. **B** - The y -coordinates match, so use $|6 - (-3)| = 9$. Computing $6 - 3$ forgets that -3 is negative.
2. **A** - The legs are 3 and 4, so $d = \sqrt{9 + 16} = 5$. Adding the legs gives 7, and stopping before the square root gives 25.
3. **B** - The legs are 8 and 6, so $d = \sqrt{64 + 36} = 10$. Adding the legs gives 14, and 100 is d^2 .
4. **B** - The legs are 3 and 6, so $d = \sqrt{9 + 36} = \sqrt{45} \approx 6.7$. Adding the legs gives 9, and forgetting the root gives 45.
5. **D** - The distance formula subtracts matching coordinates, squares each difference, adds, and takes the square root. The other choices add the coordinates, skip the root, or subtract the squares.
6. **C** - The sides are 3, 4 and $\sqrt{9 + 16} = 5$, so the perimeter is 12. Using only the two legs gives 7.
7. **C** - For $(6, 8)$, $\sqrt{36 + 64} = 10$. The others give $\sqrt{72}$, $\sqrt{98}$ and $\sqrt{80}$, which are not 10.
8. **D** - The horizontal leg is 12, so $(y - 1)^2 = 169 - 144 = 25$ and $y - 1 = 5$. Then $y = 6$. The value 5 is the vertical leg, not the coordinate.
9. **C** - The legs are 6 and 8, so the distance is 10 units. Each unit is 5 miles, so it is 50 miles. Adding the legs gives 14 units, or 70 miles.
10. **A** - Each side has legs 4 and 3, so each side is 5 and the perimeter is 20. Adding the legs on every side gives 28.

Remember:

- Standard 8.G.B.8: apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
- The horizontal and vertical changes are the legs of a right triangle; the segment is the hypotenuse.
- Distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.
- The order of the points does not matter, because squares are never negative.
- Perimeter on a grid: find each side length, then add them.