

Grade 8 · Distance in the Coordinate Plane · Test Answer Key

Common Core 8.G.B.8 · mathovore.fr

Use this key to score the coordinate distance test out of 20 points. Each solution shows the legs, the squares and the square root, and the scoring note explains the partial credit. Accept equivalent exact forms such as $\sqrt{45}$ when no rounding is requested.

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

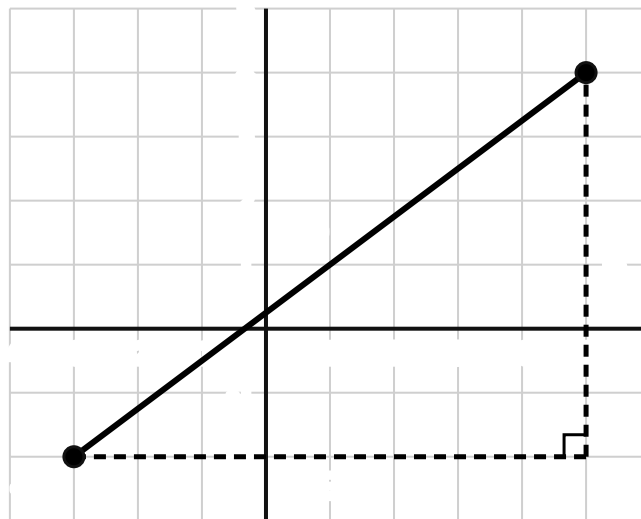
Question 1: Horizontal and vertical distance (2 points)

- a. $|5 - (-4)| = 9$ units.
- b. $|8 - (-6)| = 14$ units.

Scoring: 1 point for each correct distance.

Question 2: Distance between two points (2 points)

Legs: $5 - (-3) = 8$ and $4 - (-2) = 6$. $d^2 = 64 + 36 = 100$, so $d = 10$ units.



Legs 8 and 6.

Scoring: 1 point for the two legs and the sum of squares, 1 point for 10.

Question 3: Rounded distance (2 points)

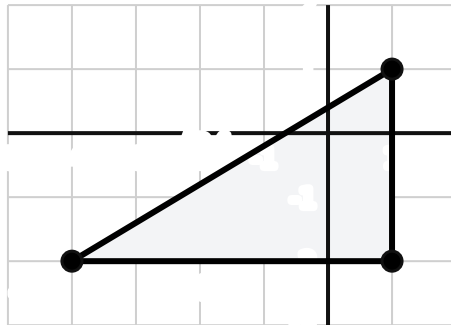
Legs: $7-1=6$ and $|-1-(-4)|=3$. $d^2=36+9=45$, so $d=\sqrt{45}\approx 6.7$ units.

The distance is about **6.7 units**.

Scoring: 1 point for $d^2=45$, 1 point for the rounded distance.

Question 4: Perimeter of a triangle (3 points)

- a. $DE=|1-(-4)|=5$. $EF=|1-(-2)|=3$. $DF=\sqrt{5^2+3^2}=\sqrt{34}\approx 5.8$.
b. Perimeter $\approx 5+3+5.8=13.8$ units.



Side lengths.

Scoring: Part (a): 1 point for the two straight sides, 1 point for $\sqrt{34}$. Part (b): 1 point.

Question 5: Is it a right triangle? (3 points)

$$JK^2=4^2+2^2=20. \quad JL^2=1^2+(-2)^2=5. \quad KL^2=(-3)^2+(-4)^2=25.$$

The longest side is KL , and $JK^2+JL^2=20+5=25=KL^2$. By the converse of the Pythagorean Theorem, **it is a right triangle** with the right angle at J .

Scoring: 1 point for the three squared lengths, 1 point for comparing with the longest side, 1 point for the conclusion.

Question 6: Missing coordinate (2 points)

The vertical leg is $5-(-1)=6$. So $(x+2)^2+6^2=10^2$, and $(x+2)^2=64$.

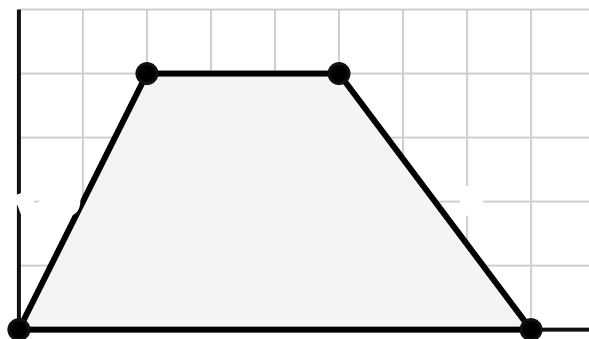
Then $x+2=8$, so $x=6$.

Scoring: 1 point for the equation $(x+2)^2+36=100$, 1 point for $x=6$.

Question 7: Perimeter of a trapezoid (3 points)

$AB = 8$ and $CD = 5 - 2 = 3$. $BC = \sqrt{3^2 + 4^2} = 5$. $DA = \sqrt{2^2 + 4^2} = \sqrt{20} \approx 4.5$.

Perimeter: $8 + 5 + 3 + 4.5 = \mathbf{20.5 \text{ units}}$.



Side lengths.

Scoring: 1 point for the two straight sides (8 and 3), 1 point for the two slanted sides, 1 point for the perimeter.

Question 8: Bike to school (3 points)

- Legs: $7 - (-5) = 12$ and $2 - (-3) = 5$. $d^2 = 144 + 25 = 169$, so $d = 13$ units. $13 \times 0.1 = \mathbf{1.3 \text{ miles}}$.
- $1.3 \div 6.5 = 0.2$ hour, and $0.2 \times 60 = \mathbf{12 \text{ minutes}}$.

Scoring: Part (a): 1 point for 13 units, 1 point for converting to 1.3 miles. Part (b): 1 point.

Total
20 points