

G.G.67: Distance 3: Find the length of a line segment, given its endpoints

- 1 What is the distance between points $A(7,3)$ and $B(5,-1)$?

1) $\sqrt{10}$
2) $\sqrt{12}$
3) $\sqrt{14}$
4) $\sqrt{20}$

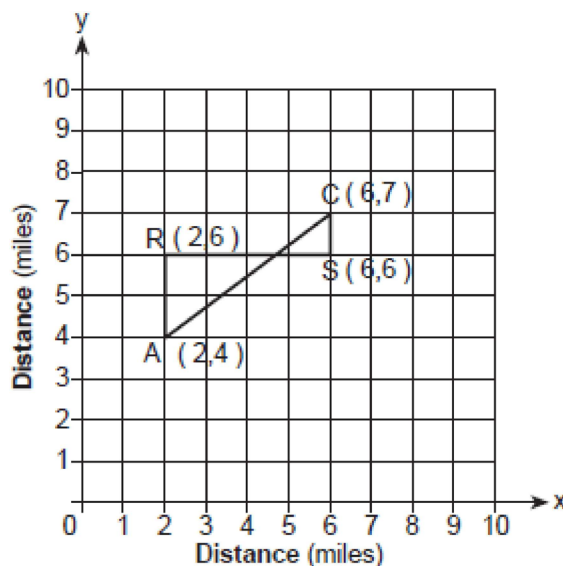
- 2 The coordinates of point R are $(-3,2)$ and the coordinates of point T are $(4,1)$. What is the length of \overline{RT} ?

1) $2\sqrt{2}$
2) $5\sqrt{2}$
3) $4\sqrt{3}$
4) $\sqrt{10}$

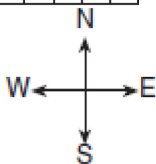
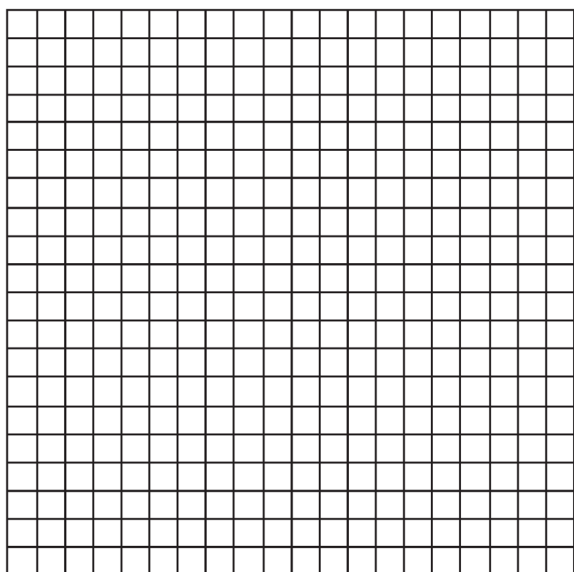
- 3 What is the length of the line segment that joins the points whose coordinates are $(4,7)$ and $(-3,5)$?

1) $\sqrt{5}$
2) $\sqrt{53}$
3) $\sqrt{193}$
4) $3\sqrt{6}$

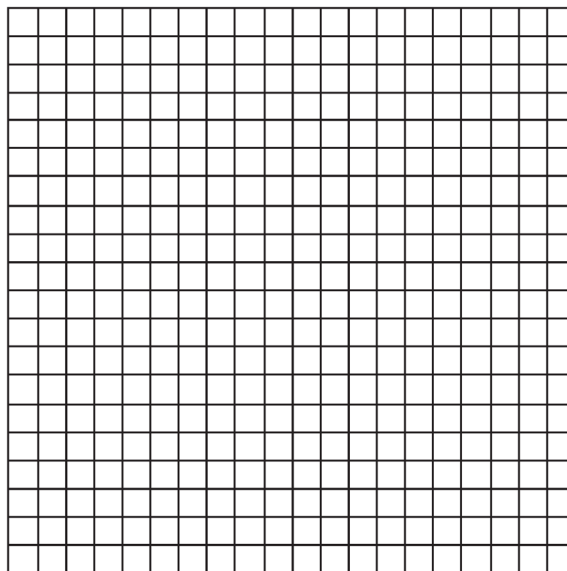
- 4 Jerry and Jean Jogger start at the same time from point A shown on the accompanying set of axes. Jerry jogs at a rate of 5 miles per hour traveling from point A to point R to point S and then to point C . Jean jogs directly from point A to point C on \overline{AC} at the rate of 3 miles per hour. Which jogger reaches point C first? Explain or show your reasoning.



- 5 To get from his high school to his home, Jamal travels 5.0 miles east and then 4.0 miles north. When Sheila goes to her home from the same high school, she travels 8.0 miles east and 2.0 miles south. What is the measure of the shortest distance, to the *nearest tenth of a mile*, between Jamal's home and Sheila's home? [The use of the accompanying grid is optional.]



- 6 Two hikers started at the same location. One traveled 2 miles east and then 1 mile north. The other traveled 1 mile west and then 3 miles south. At the end of their hikes, how many miles apart are the two hikers? [The use of the accompanying grid is optional.]



- 7 Katrina hikes 5 miles north, 7 miles east, and then 3 miles north again. To the *nearest tenth of a mile*, how far, in a straight line, is Katrina from her starting point?

G.G.67: Distance 3: Find the length of a line segment, given its endpoints**Answer Section**

1 ANS: 4

$$d = \sqrt{(7-5)^2 + (3-(-1))^2} = \sqrt{20}$$

REF: spring9811a

2 ANS: 2

$$d = \sqrt{(-3-4)^2 + (2-1)^2} = \sqrt{50} = 5\sqrt{2}.$$

REF: 010524a

3 ANS: 2

$$d = \sqrt{(-3-4)^2 + (5-7)^2} = \sqrt{49+4} = \sqrt{53}.$$

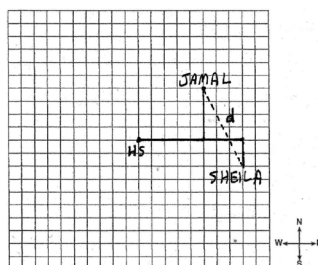
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4 ANS:

Since Jerry travels a distance of 7 (2 + 4 + 1) miles at 5 mph, he arrives at Point C in 1.4 (7 ÷ 5) hours. Since Jean travels a distance of 5 ($\sqrt{3^2 + 4^2}$) miles at 3 mph, she arrives at Point C in 1. $\bar{6}$ (5 ÷ 3) hours. Jerry reaches Point C first.

REF: 010226a

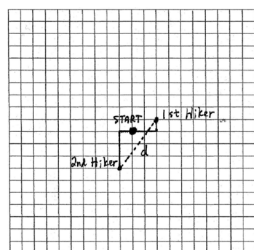
5 ANS:



$$6.7. \quad d = \sqrt{3^2 + 6^2} \approx 6.7.$$

REF: 060330a

6 ANS:



$$5. \quad d = \sqrt{3^2 + 4^2} = 5.$$

REF: 060633a

7 ANS:

10.6. $\sqrt{(5+3)^2 + 7^2} = \sqrt{113} \approx 10.6$

REF: 080030a