G.CO.A.1: Distance 1

1 A line segment has endpoints $(4,7)$ and $(1,11)$. What is the length of the segment?
   1) 5
   2) 7
   3) 16
   4) 25

2 What is the length, to the *nearest tenth,* of the line segment joining the points $(-4,2)$ and $(146,52)$?
   1) 141.4
   2) 150.5
   3) 151.9
   4) 158.1

3 What is the length of a line segment whose endpoints have coordinates $(5,3)$ and $(1,6)$?
   1) 5
   2) 25
   3) $\sqrt{17}$
   4) $\sqrt{29}$

4 What is the length of the line segment whose endpoints are $(1,-4)$ and $(9,2)$?
   1) 5
   2) $2\sqrt{17}$
   3) 10
   4) $2\sqrt{26}$

5 What is the length of the line segment with endpoints $(-6,4)$ and $(2,-5)$?
   1) $\sqrt{13}$
   2) $\sqrt{17}$
   3) $\sqrt{72}$
   4) $\sqrt{145}$

6 What is the distance between points $A(7,3)$ and $B(5,-1)$?
   1) $\sqrt{10}$
   2) $\sqrt{12}$
   3) $\sqrt{14}$
   4) $\sqrt{20}$

7 If the endpoints of $\overline{AB}$ are $A(-4,5)$ and $B(2,-5)$, what is the length of $\overline{AB}$?
   1) $2\sqrt{34}$
   2) 2
   3) $\sqrt{61}$
   4) 8

8 What is the length of $\overline{RS}$ with $R(-2,3)$ and $S(4,5)$?
   1) $2\sqrt{2}$
   2) 40
   3) $2\sqrt{10}$
   4) $2\sqrt{17}$

9 What is the length of the line segment whose endpoints are $A(-1,9)$ and $B(7,4)$?
   1) $\sqrt{61}$
   2) $\sqrt{89}$
   3) $\sqrt{205}$
   4) $\sqrt{233}$

10 What is the length of $\overline{AB}$ with endpoints $A(-1,0)$ and $B(4,-3)$?
   1) $\sqrt{6}$
   2) $\sqrt{18}$
   3) $\sqrt{34}$
   4) $\sqrt{50}$

11 What is the distance between the points $(-3,2)$ and $(1,0)$?
1) $2\sqrt{2}$
2) $2\sqrt{3}$
3) $5\sqrt{2}$
4) $2\sqrt{5}$

12 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) $\sqrt{10}$

13 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) $3\sqrt{6}$

14 Line segment AB has endpoint A located at the origin. Line segment AB is longest when the coordinates of B are
1) $(3,7)$
2) $(2,-8)$
3) $(-6,4)$
4) $(-5,-5)$

15 Determine and state the length of a line segment whose endpoints are $(6,4)$ and $(-9,-4)$.

16 The endpoints of $\overline{PQ}$ are $P(-3,1)$ and $Q(4,25)$. Find the length of $\overline{PQ}$.

17 The coordinates of the endpoints of $\overline{FG}$ are $(-4,3)$ and $(2,5)$. Find the length of $\overline{FG}$ in simplest radical form.

18 Find, in simplest radical form, the length of the line segment with endpoints whose coordinates are $(-1,4)$ and $(3,-2)$.

19 The endpoints of $\overline{AB}$ are $A(3,-4)$ and $B(7,2)$. Determine and state the length of $\overline{AB}$ in simplest radical form.

20 The coordinates of the endpoints of $\overline{CD}$ are $C(3,8)$ and $D(6,-1)$. Find the length of $\overline{CD}$ in simplest radical form.

21 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.
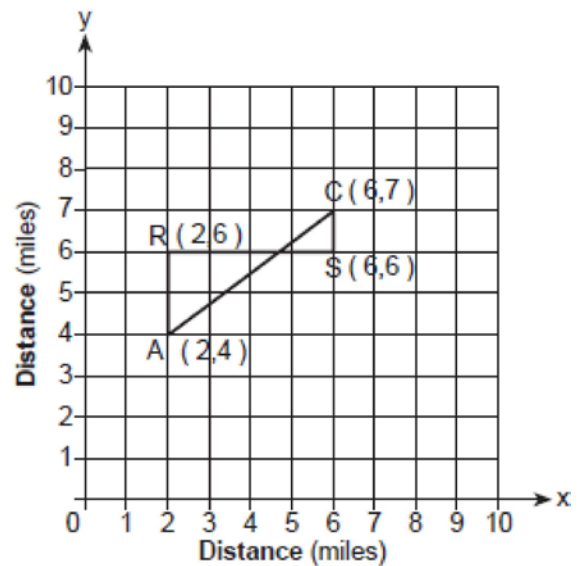
22 To get from his high school to his home, Jamal travels 5.0 miles east and then 4.0 miles north. When Sheila goes to her home from the same high school, she travels 8.0 miles east and 2.0 miles south. What is the measure of the shortest distance, to the *nearest tenth of a mile,* between Jamal's home and Sheila's home? [The use of the accompanying grid is optional.]
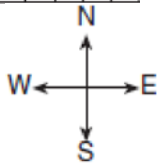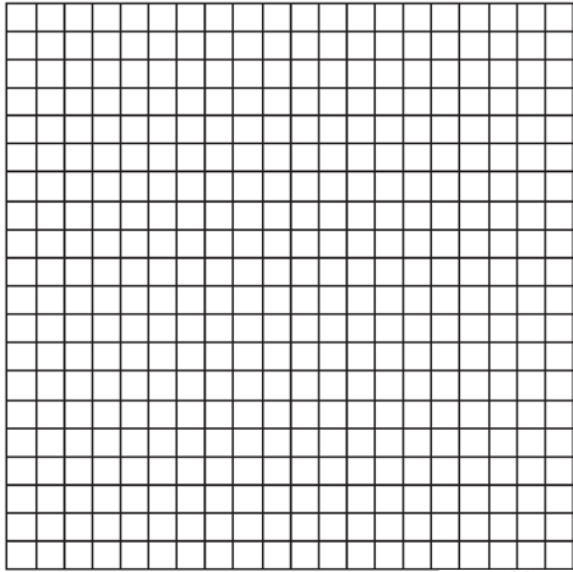
23 Two hikers started at the same location. One traveled 2 miles east and then 1 mile north. The other traveled 1 mile west and then 3 miles south. At the end of their hikes, how many miles apart are the two hikers? [The use of the accompanying grid is optional.]
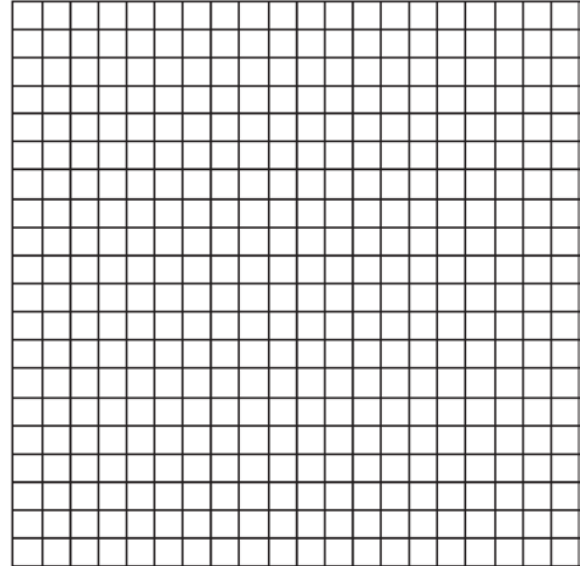
24 Katrina hikes 5 miles north, 7 miles east, and then 3 miles north again. To the *nearest tenth of a mile,* how far, in a straight line, is Katrina from her starting point?

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Answer Section

1 ANS: 1
$$d = \sqrt{(4-1)^2 + (7-11)^2} = \sqrt{9+16} = \sqrt{25} = 5$$

REF: 011205ge

2 ANS: 4
$$d = \sqrt{(146-(-4))^2 + (52-2)^2} = \sqrt{25{,}000} \approx 158.1$$

REF: 061021ge

3 ANS: 1
$$d = \sqrt{(5-1)^2 + (3-6)^2} = \sqrt{16+9} = \sqrt{25} = 5$$

REF: 011507ge

4 ANS: 3
$$d = \sqrt{(1-9)^2 + (-4-2)^2} = \sqrt{64+36} = \sqrt{100} = 10$$

REF: 081107ge

5 ANS: 4
$$d = \sqrt{(-6-2)^2 + (4-(-5))^2} = \sqrt{64+81} = \sqrt{145}$$

REF: 081013ge

6 ANS: 4
$$d = \sqrt{(7-5)^2 + (3-(-1))^2} = \sqrt{20}$$

REF: spring9811a

7 ANS: 1
$$d = \sqrt{(-4-2)^2 + (5-(-5))^2} = \sqrt{36+100} = \sqrt{136} = \sqrt{4} \cdot \sqrt{34} = 2\sqrt{34}.$$

REF: 080919ge

8 ANS: 3
$$d = \sqrt{(-2-4)^2 + (3-5)^2} = \sqrt{36+4} = \sqrt{40} = 2\sqrt{10}$$

REF: 061411ge

9 ANS: 2
$$d = \sqrt{(-1-7)^2 + (9-4)^2} = \sqrt{64+25} = \sqrt{89}$$

REF: 061109ge

10 ANS: 3

$$d = \sqrt{(-1-4)^2 + (0-(-3))^2} = \sqrt{25+9} = \sqrt{34}$$

REF: 061217ge

11 ANS: 4

$$d = \sqrt{(-3-1)^2 + (2-0)^2} = \sqrt{16+4} = \sqrt{20} = \sqrt{4} \cdot \sqrt{5} = 2\sqrt{5}$$

REF: 011017ge

12 ANS: 2

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

REF: 010524a

13 ANS: 2

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

REF: 080726a

14 ANS: 2   REF: 081415ge

15 ANS:

$$\sqrt{(6--9)^2 + (4--4)^2} = \sqrt{225+64} = \sqrt{289} = 17$$

REF: 011632ge

16 ANS:

$$25. \ d = \sqrt{(-3-4)^2 + (1-25)^2} = \sqrt{49+576} = \sqrt{625} = 25.$$

REF: fall0831ge

17 ANS:

$$\sqrt{(-4-2)^2 + (3-5)^2} = \sqrt{36+4} = \sqrt{40} = \sqrt{4}\sqrt{10} = 2\sqrt{10}.$$

REF: 081232ge

18 ANS:

$$\sqrt{(-1-3)^2 + (4-(-2))^2} = \sqrt{16+36} = \sqrt{52} = \sqrt{4}\sqrt{13} = 2\sqrt{13}$$

REF: 081331ge

19 ANS:

$$\sqrt{(3-7)^2 + (-4-2)^2} = \sqrt{16+36} = \sqrt{52} = \sqrt{4}\sqrt{13} = 2\sqrt{13}.$$

REF: 011431ge

20 ANS:

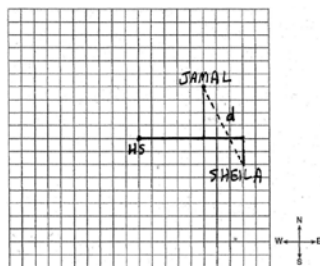$$\sqrt{(6-3)^2 + (-1-8)^2} = \sqrt{9+81} = \sqrt{90} = \sqrt{9}\sqrt{10} = 3\sqrt{10}.$$

REF: 061533ge

21 ANS:

Since Jerry travels a distance of 7 ($2 + 4 + 1$) miles at 5 mph, he arrives at Point C in 1.4 ($7 \div 5$) hours. Since Jean travels a distance of 5 ($\sqrt{3^2 + 4^2}$) miles at 3 mph, she arrives at Point C in $1.\overline{6}$ ($5 \div 3$) hours. Jerry reaches Point C first.
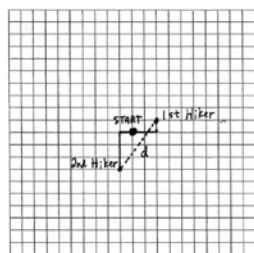
REF: 010226a

22 ANS:

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

REF: 060330a

23 ANS:

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

REF: 060633a

24 ANS:

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

REF: 080030a