1. What is the **distance traveled** by Nina if she walks 3 km north and then turns and walks 5 km west.

   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   _____ meters _____

2. What is the **displacement** of Nina if she walks 3 km north and then turns and walks 5 km west.

   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   _____ meters _____

3. What is the **distance traveled** by Bill if he climbs 20 meters up the side of a building and repels back to the ground?

   Please express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   _____ meters _____

4. What is the **displacement** of Bill if he climbs 15 meters up the side of a building and repels back to the ground?

   Please express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   _____ meters _____

5. What is the **distance traveled** by Jericho if she walks 6 km north, then turns and walks 7 km west, and finally walks 2 km south.

   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   _____ meters _____

6. What is the **displacement** of Jericho if she walks 6 km north, then turns and walks 7 km west, and finally walks 2 km south.

   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   _____ meters _____

Solutions

1. What is the **distance traveled** by Nina if she walks 3 km north and then turns and walks 5 km west.

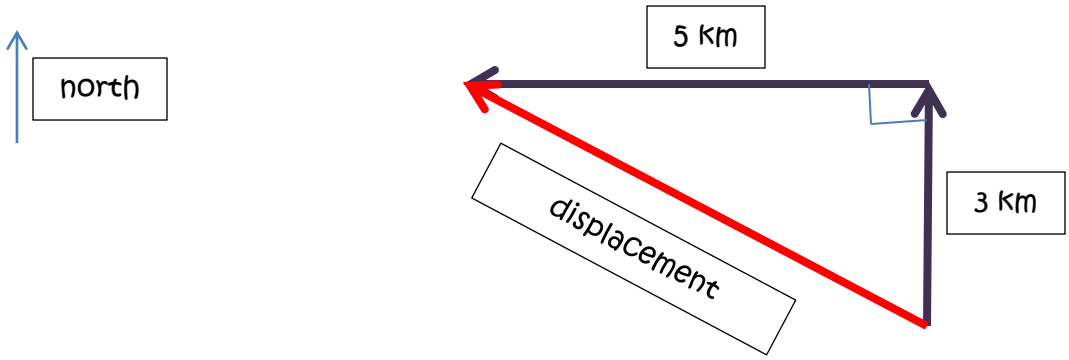
   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

   3 km + 5 km = 8 km = 8,000 meters

   Direction is "none" because distance traveled is a scalar quantity and never has direction.

2. What is the **displacement** of Nina if she walks 3 km north and then turns and walks 5 km west.

   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.



$A^2 + B^2 = C^2$

$(5000\ m)^2 + (3000\ m)^2 = C^2$

$34{,}000{,}000\ m^2 = C^2$

$5{,}830.95\ m = C$

Displacement is 5,830.95 m northwest

3. What is the **distance traveled** by Bill if he climbs 20 meters up the side of a building and repels back to the ground?

   Please express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

20 meters + 20 meters = 40 meters

Direction is "none" because distance traveled is a scalar quantity.

4. What is the **displacement** of Bill if he climbs 15 meters up the side of a building and repels back to the ground?

   Please express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

His displacement is zero meters because he starts and stops in the same place. The direction of displacement is "none" because displacement is zero.

5. What is the **distance traveled** by Jericho if she walks 6 km north, then turns and walks 7 km west, and finally walks 2 km south.

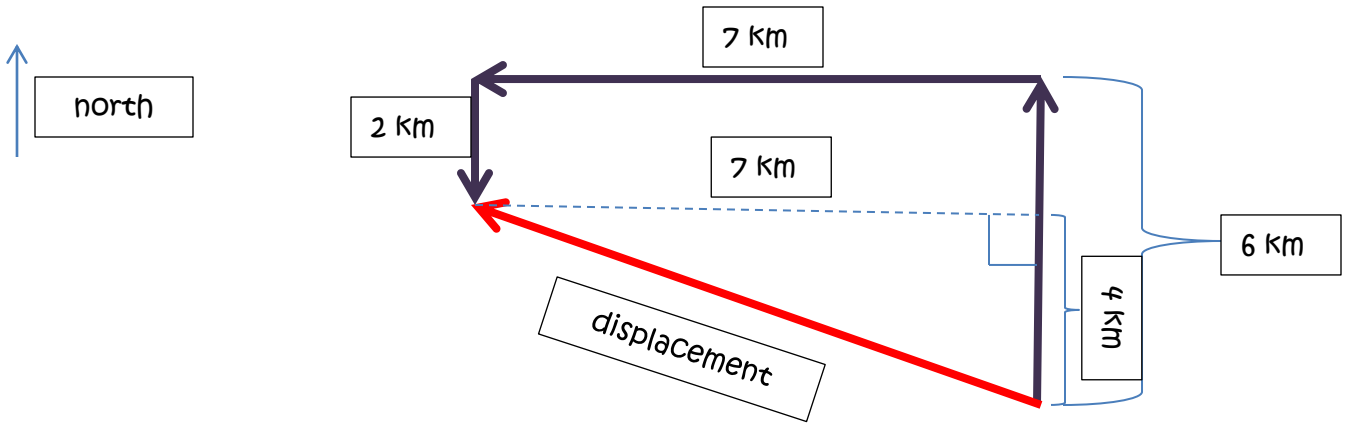
   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.

Distance traveled = 6 km + 7 km + 2 km = 15 km = 15,000 meters

The direction for distance traveled is ALWAYS "none" because distance is a scalar quantity.

6. What is the **displacement** of Jericho if she walks 6 km north, then turns and walks 7 km west, and finally walks 2 km south.

   Please round your answer to two decimal places, and express your answer using the proper SI unit(s). Place the magnitude of your answer in the first blank, and the direction in the second blank. If there is no direction, type "none" in the second blank.



$A^2 + B^2 = C^2$

$(7{,}000\ m)^2 + (4{,}000\ m)^2 = C^2$

$65{,}000{,}000\ m^2 = C^2$

$8{,}062.26\ m = C$

Displacement is 8,062.26 meters northwest.