LESSON MAKER PRO

Vector Move Map

Find each movement from start to finish.

HIGH SCHOOL · HSN-VM.A.2

CCSS.Math.Content.HSN-VM.A.2 "(+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point."

NAME _____ DATE _____

SUBTRACT START FROM FINISH

A vector shows how to move from an initial point to a terminal point. Subtract the initial x-coordinate from the terminal x-coordinate, then subtract the initial y-coordinate from the terminal y-coordinate.

WORKED EXAMPLE

Find the components of vector AB if A(-3, 4) is the initial point and B(5, -2) is the terminal point.

1. Subtract the x-coordinates: 5 - (-3) = 8.
2. Subtract the y-coordinates: -2 - 4 = -6.
3. Write the components in order: <8, -6>.

Answer: <8, -6>

PRACTICE 6 problems

1 Find the components of vector PQ if P(1, 7) and Q(9, 10).

ANSWER _____

2 Find the components of vector MN if M(-6, 2) and N(-1, 11).

ANSWER _____

3 Find the components of vector RS if R(12, -4) and S(3, 6).

ANSWER _____

4 Find the components of vector UV if U(0, 13) and V(-8, 1).

ANSWER _____

5 Find the components of vector AB if A(14, 9) and B(7, -5).

ANSWER _____

6 Find the components of vector CD if C(-10, -7) and D(2, -12).

ANSWER _____

APPLY IT Show your work

1 At a gaming tournament, a robot camera starts at coordinate (6, -8) and finishes at coordinate (15, 3). What are the components of the camera's movement vector?

WORK SPACE

ANSWER _____

2 A student tracks a bike ride on a coordinate map. The ride starts at (-11, 16) and ends at (8, 19). What is the displacement vector from the start to the end?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A drone's terminal point is (26, -17). Its displacement vector from its initial point is <19, -8>. Find the initial point. Explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Vector Move Map

HIGH SCHOOL · HSN-VM.A.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the components of vector PQ if P(1, 7) and Q(9, 10).	**<8, 3>**
2	Find the components of vector MN if M(-6, 2) and N(-1, 11).	**<5, 9>**
3	Find the components of vector RS if R(12, -4) and S(3, 6).	**<-9, 10>**
4	Find the components of vector UV if U(0, 13) and V(-8, 1).	**<-8, -12>**
5	Find the components of vector AB if A(14, 9) and B(7, -5).	**<-7, -14>**
6	Find the components of vector CD if C(-10, -7) and D(2, -12).	**<12, -5>**

PART 2 · APPLY IT

1. **<9, 11>** Subtract the starting coordinates from the finishing coordinates: 15 - 6 = 9 and 3 - (-8) = 11.
2. **<19, 3>** Subtract the start from the end: 8 - (-11) = 19 and 19 - 16 = 3.

CHALLENGE

Initial point: (7, -9). Since terminal - initial = displacement, the initial x-coordinate is 26 - 19 = 7 and the initial y-coordinate is -17 - (-8) = -9.

Accept component notation such as <8, 3> or an ordered pair such as (8, 3) if the student clearly identifies it as a vector. Check that students subtract initial coordinates from terminal coordinates in the correct order.