SPH4C

ADDING VECTORS ALONG A STRAIGHT LINE

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When you add vector quantities such as displacements, you need to consider both the ____ _____ and the _____ _____ of each quantity being added. A _____ _____ _____ _ _____ can be used to add vector quantities together.

In a vector diagram vectors are drawn _____ _____ to _____ The _____ of the vector represents the magnitude or distance in this case and the _____ _____ shows the direction. As many vectors as necessary can be added together by drawing them head to tail.

Example: Tim and Jeff walk 12 km [E] to Jeff's house, then they walk another 5 km [E] to the river. After fishing for a while, they walk 8km [W] to the store to buy more worms.

How do we know determine the sum of the vectors? The final sum is called the _____. We can determine the resultant by

The _____ _____ , _____ _____, ___ _____, is a single displacement that has the same effect as all of the individual displacements combined.

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Linear Vectors can also be added _____ __. If we are adding vectors, _____, _____ and _____ _____ signs are used to indicate _____.

Example: Madeleine and Gordon went to subway for dinner. They drove 15 km [S] and then 8 km [N] to the movie theatre. What was their resultant displacement?

Steps for Determining the Resultant Displacement using Algebra

1. _____
2. _____
3. _____
4. _____
5. _____

Either method works, you can use both, allowing you to double-check your answers.

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HOMEWORK

Pg. 10 #1-5   Pg. 13 #8-10   Pg. 15 #11 (a,b,c)

1.   Draw a vector diagram from your house to the school.

2.   What is the rule for adding vectors in a vector diagram?

3.   What is the rule for drawing the resultant vector in a vector diagram?

4.   A soccer player leaves the bench and runs 25m [N] and then 40m [S]. Use a scale or vector
        diagram to find the resulting displacement.

5.   what is the rules for adding vectors algebraically?

6.   An actor walks 5m stage right (east in this case) and then 15m stage left.
a.   Find the resultant displacement algebraically
b.   Draw a scale vector diagram to find the resultant displacement.

7.   On a paper delivery route, Julia walks from home three blocks north to collect her newspapers,
        walks back eight blocks south while delivering papers, and then returns home.
a.   What is Julia's distance traveled?
b.   What is Julia's displacement?