PHYSICS

ADDING VECTORS ALONG A STRAIGHT LINE

Learning Goals

B2.5 - Solve problems involving distance, position, and displacement using a vector diagram.

B3.2 - Distinguish between scalar and vector quantities as they relate to uniform and non-uniform motion.

Success Criteria

☐ What is a displacement vector?

☐ What is the rule for adding vectors?

☐ When solving algebraically, why is it important to define which direction is positive?

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Linear Vectors can 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. _____

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Position vs. Displacement

Position:

Displacement: A vector quantity that measures the change in position from start to finish.

Displacement = Change in Position

Displacement = Final Position **-** Initial Position

$$\overrightarrow{\Delta d} = \overrightarrow{d_2} - \overrightarrow{d_1}$$

NOTE: You can't **subtract** vector quantities.

In order to solve you must **ADD the OPPOSITE**.

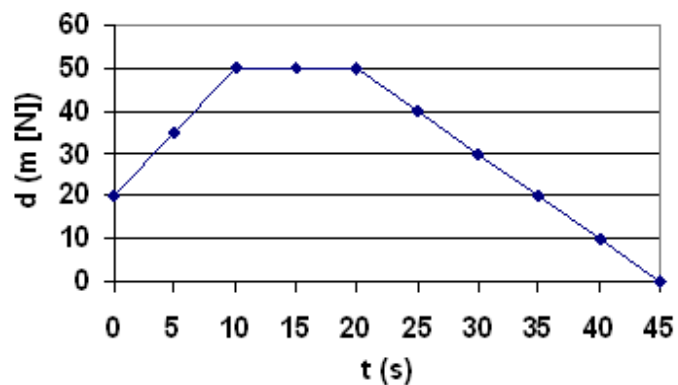*Ex: Jim (John's brother) also goes for a walk.*

He starts at a position of 10 km [W] and ends at a position of 2 km [W]. What is John's displacement from his initial position?

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Position-Time Graphs

Consider the following Position-Time Graph:

a) What is the distance travelled from 0 - 45s?

b) What is the objects average speed during this 45s?

c) What is the object's displacement from 0 - 45s?

d) What is the object's velocity during this 45s?

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LEARNING GOALS

1. What is a displacement vector?

2. What is the rule for adding Vectors?

3. When solving algebraically, why is it important to define which direction is positive?

HOMEWORK

Textbook:

Pg. 11 #1 - 3

Pg. 13 #1 - 5

Pg. 20 #1 - 8