Wednesday, November 14/12
Science 10

Announcements

Miramichi Hoop Classic - Friday PM

1. Activity: Adding Displacement Vectors - Page 424 - Past Due
2. Velocity and Average Velocity
3. Worksheet: Distance, Displacement, Ave. Speed and Ave. Vel.
   HW P3 and P4
4. Topics - Chapter 11 Test
5. Chapter 11 Review - Page 442 - #1, 2, 4, 5, 9, 10 HW P3 and P4
6. Explore an Issue - Athletes on the Edge - Page 430
7. Unit 3 - Chapter 12

1. $\vec{V}_{ave} = 0.069 \frac{km}{s}$ [S]

2. Omit

*3. $\Delta\vec{d}_1 = +1.00\,km$ $\quad t = 2.0\,h$

$\Delta\vec{d}_2 = -3.00\,km$

$\Delta\vec{d}_3 = -2.00\,km$

$\Delta\vec{d}_4 = +6.00\,km$

a) $d = 1.00\,km + 3.00\,km + 2.00\,km + 6.00\,km$

$d = 12.00\,km$

The distance was 12.00 km.
↓ scalar

b) ave. speed → $V_{ave} = \frac{d}{t}$ → distance / → time

$V_{ave} = \frac{12.00\,km}{2.0\,h}$

$V_{ave} = 6.0 \frac{km}{h}$

WS

c) $\Delta\vec{d}_R = \Delta\vec{d}_1 + \Delta\vec{d}_2 + \Delta\vec{d}_3 + \Delta\vec{d}_4$

$\Delta\vec{d}_R = +1.00km - 3.00\,km - 2.00km + 6.00km$

$\Delta\vec{d}_R = +2.00\,km$

WS ⇒ The resultant displacement is 2.00 km, north.

d) $\vec{V}_{av} = \frac{\Delta\vec{d}_R}{t}$

$\vec{V}_{av} = \frac{+2.00\,km}{2.0\,h}$

$\vec{V}_{av} = +1.0 \frac{km}{h}$ [WS]

#4. a) 2.0 m/s (speed/scalar)

b) 2.0 m [W]

c) $2.8 \frac{m}{s}$

d) 14.0 m

e) $0.40 \frac{m}{s}$ [W]

Chapter 11 - Test Topics

→ physical quantities
ie/ time, distance, velocity, speed, volume, position, displacement, etc

→ types of physical quantities

physical quantity
- scalar → size
  - speed
  - distance
  - time
- vector → size + direction
  - velocity
  - acceleration
  - position
  - displacement

→ directions

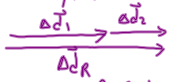
positive	negative
E	W
N	S
right	left
up	down

→ position : $\vec{d}$
⇒ 100 Acre Wood
⇒ map of MVHS

→ displacement : $\Delta\vec{d}$
$\Delta\vec{d} = \vec{d}_2 - \vec{d}_1$

→ Vector diagrams
① Scale 1cm =
① draw body of the arrow to scale
① add arrowhead
① label vector

→ Head-to-foot // Head-to-tail method



→ 3 Methods for finding $\Delta\vec{d}_R$.
1. scale diagram
2. algebraic
   $\Delta\vec{d}_R = \Delta\vec{d}_1 + \Delta\vec{d}_2$
3. combined method
   → sketch
   → formula

→ velocity (speed + direction)

$$\vec{V} = \frac{\Delta\vec{d}}{t}$$

→ average velocity

$$\vec{V}_{av} = \frac{\Delta\vec{d}_R}{t}$$

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Chapter 11 Review

Understanding Concepts

1. Explain what is meant by a vector quantity, and give two examples.
2. Explain what is meant by a scalar quantity, and give two examples.

4. Identify the following quantities as distance, position, displacement, speed, or velocity:
   (a) Nicole lives 1.60 km southwest of her school.
   (b) Su-Lin averages 18 km/h when she rides her bike to school.
   (c) Brad ran 15 km in the Terry Fox Run.
   (d) Kim jogged 1.0 km [S] and then 2.5 km [W].
   (e) Jean encountered a 45-km/h north wind on his bike trip.
5. Describe two ways of communicating vector quantities, other than with words.

9. If Doug leaves home on a trip to the lake that takes him to a position 80 km [W] of home, what is his displacement? Do you know the distance that he travelled? Explain.
10. A volunteer, delivering fliers from home, walks down the street 200 m [W], back up the other side 350 m [E], and then returns home.
    (a) What is the volunteer's resultant displacement?
    (b) Use the full algebraic method to prove your answer in (a).
    (c) Use a scale vector diagram to prove your answer in (a).