Announcements

Read 2.3

Group tomorrow
   Lecture on chp 1

Clickers today   (Do not count)

1st webassign set available (10pts)
    Intro (0 pts)

Interactive Question

D

You walk from one place to another place. When you arrive at your destination, the *distance* you have traveled will always be:

A) greater than
B) equal to
C) smaller than
D) either greater than or equal to
E) either smaller than or equal to

your *displacement* from your initial position.

Problem: If you run for 43 minutes at an average speed of 2.22 m/s. How far will you run?

Given: $t = 43\,min$
$\qquad\quad s = 2.22\,m/s$

Want: d

What principle and equation relates average speed to distance?

$$s = \frac{d}{t} \qquad d = st$$

$$d = (2.22\,m/s)(43\,min) \qquad \frac{m\cdot min}{s} \quad \substack{\text{wrong} \\ \text{unit}}$$

$$\frac{43\,min}{1}\Big|\frac{60s}{min} = 2580s$$

$$d = (2.22\,m/s)(2580s) = \boxed{5700\,m}$$

Problem: You drive from Norman to Enid, a distance of 117 miles, in exactly 2 hours. Then you drive from Enid to Stillwater, a distance of 65 miles in 63 minutes.

a) What was your average speed from Norman to Enid?

b) What was your average speed from Enid to Stillwater?

c) What was your average speed for the whole trip?

a) $d = 117$ mi   wants S $S = \frac{d}{t} = \frac{117 \text{ mi}}{2 \text{ hr}} = \boxed{58.5 \text{ mi/hr}}$
$t = 2.0$ hr

b) $S = \frac{d}{t} = \frac{65 \text{ mi}}{1.05 \text{ hr}} = \boxed{61.9 \text{ mi/h}}$ $\frac{63 \text{ min}}{1} \times \left| \frac{1 \text{ hr}}{60 \text{ min}} \right| = 1.05 \text{ hr}$

c) Total distance = $117 \text{ mi} + 65 \text{ mi} = 182 \text{ mi}$
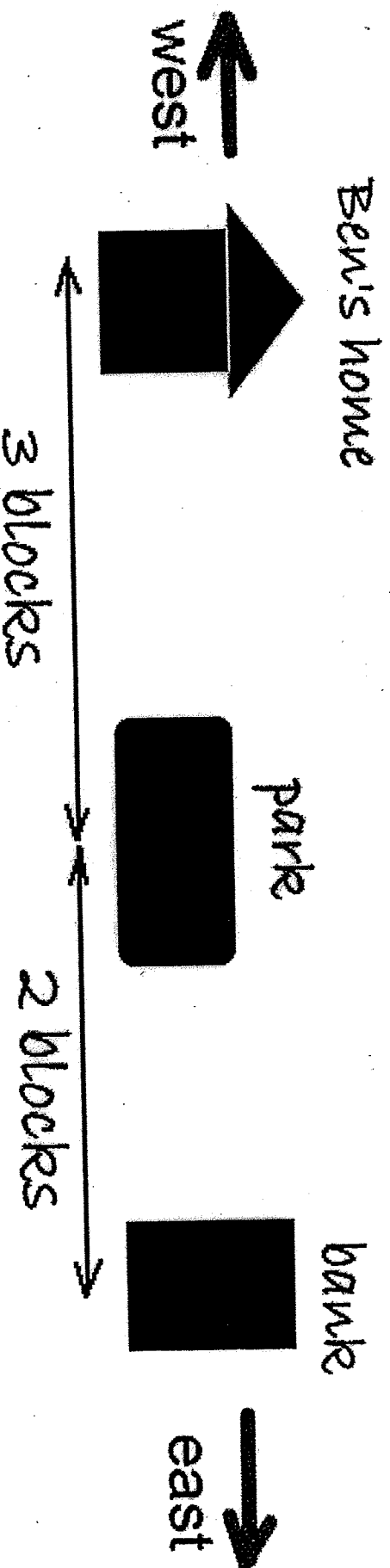Total time = $2 \text{ hr} + 1.05 \text{ hr} = 3.05 \text{ hr}$

$S = \frac{182 \text{ mi}}{3.05 \text{ hr}} = \boxed{59.7 \text{ mi/h}}$

Average $= \frac{58.5 + 61.9}{2}$
$= 60.2 \text{ mi/h}$

Interactive Question

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Ben leaves his home and walks to the bank, then back home in a total of 30 minutes. What is his average speed?

west

Ben's home

3 blocks

park

2 blocks

bank

east

A) 0 blocks/min
B) 1/3 block/min
C) 1/6 block/min
D) 2/15 block/min
E) 10 blocks/min

Interactive Question

Can the average speed ever be the same as the instantaneous?

A) No.

B) Yes, it is always the same.

C) Yes, if the speed never changes.

Interactive Question

Which of the following is a vector quantity?

A) The age of the earth.

B) The mass of a football.

C) The earth's pull on your body.

D) The temperature of an iron bar.

E) The number of people attending an OU football game.

Interactive Question
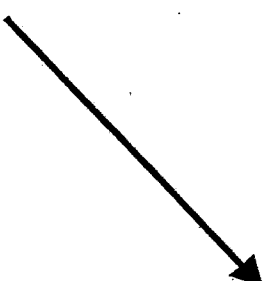
Vectors A and B are shown. Which vector best represents A + B?

A ↓

B ↓

(A) ↓

(B) ↑

(C) ↘

(D) ↑

(E) ↓

Ⓔ

Interactive Question **B**

Vectors A and B are shown. Which vector best represents A + B?

A $\downarrow$ B $\uparrow$

(A) $\downarrow$ (B) $\uparrow$ (C) $\searrow$
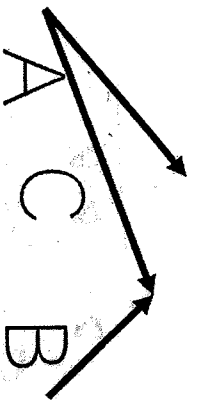
(D) $\uparrow$ (E) $\downarrow$

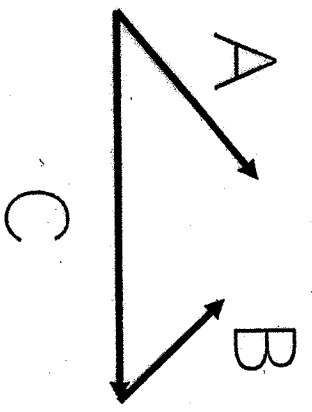# Interactive Question

Ⓔ
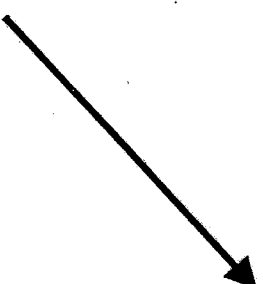
Vectors A and B are shown below.

A

B
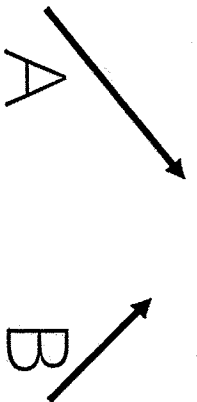
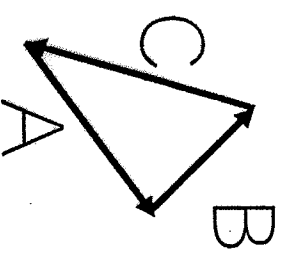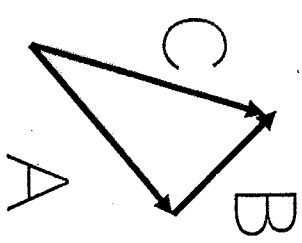Which diagram below correctly shows the vector C, where C = A + B

(A)

C

B

A

(B)

A

C

B

(C)

A

C

B

(D)

C

B

A

(E)

C

B

A