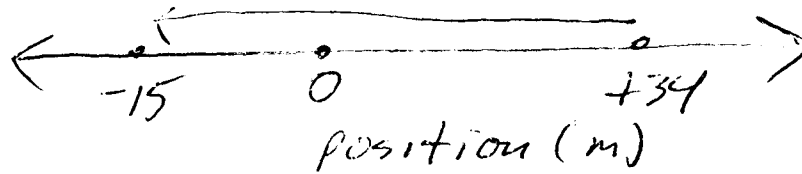


HW Problems #31-34

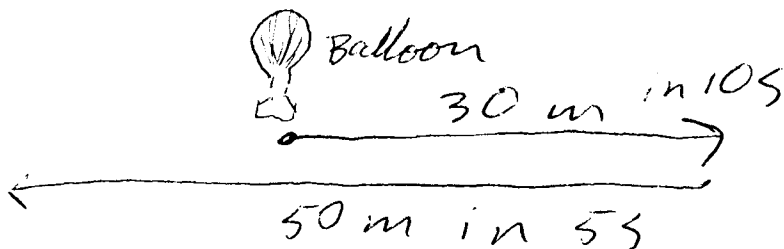
31)



Displacement =  $34 - (-15) = -49 \text{ m}$

$V_{\text{avg}} = \frac{d}{t} = \frac{49 \text{ m}}{15 \text{ s}} = 3.3 \frac{\text{m}}{\text{s}}$  in negative direction.

32)



a) Dist. =  $30 \text{ m}$

b) Dist. =  $50 \text{ m}$

c) total Dist. =  $30 \text{ m} + 50 \text{ m} = 80 \text{ m}$

d) Avg speed =  $\frac{30 \text{ m}}{10 \text{ s}} = 3 \frac{\text{m}}{\text{s}}$

e) Avg speed =  $\frac{50 \text{ m}}{5 \text{ s}} = 10 \frac{\text{m}}{\text{s}}$

f) Total Avg =  $\frac{(30 \text{ m} + 50 \text{ m})}{(10 \text{ s} + 5 \text{ s})} = \frac{80 \text{ m}}{15 \text{ s}} = 5.3 \frac{\text{m}}{\text{s}}$

g) Displacement =  $+30 \text{ m}$

h) Displacement =  $-50 \text{ m}$

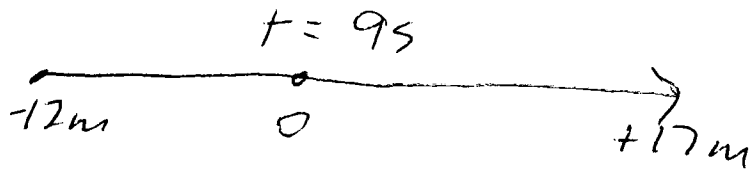
i) Total Disp. =  $30 \text{ m} - 50 \text{ m} = -20 \text{ m}$

j) Avg vel =  $\frac{30 \text{ m}}{10 \text{ s}} = +3 \frac{\text{m}}{\text{s}}$       k) Avg vel =  $\frac{-50 \text{ m}}{5 \text{ s}} = -10 \frac{\text{m}}{\text{s}}$

l) Avg total vel =  $\frac{30 \text{ m} - 50 \text{ m}}{10 \text{ s} + 5 \text{ s}} = \frac{-20 \text{ m}}{15 \text{ s}} = -1.3 \frac{\text{m}}{\text{s}}$

①

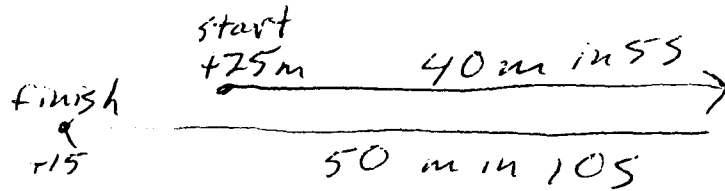
33)



$$\text{Total Disp} = \cancel{12} \text{ m} + 17 \text{ m} = 29 \text{ m}$$

$$\text{Avg. Vel} = \frac{29 \text{ m}}{9 \text{ s}} = \boxed{3.2 \frac{\text{m}}{\text{s}}}$$

34)



$$\text{a) } 25 \text{ m} + 40 \text{ m} = \boxed{65 \text{ m}}$$

$$\text{b) } 65 \text{ m} - 50 \text{ m} = \boxed{15 \text{ m}}$$

$$\text{c) Total Dist} = 40 \text{ m} + 50 \text{ m} = \boxed{90 \text{ m}}$$

$$\text{d) Avg speed} = \frac{40 \text{ m}}{5 \text{ s}} = \boxed{8 \frac{\text{m}}{\text{s}}}$$

$$\text{e) Avg} = \frac{50 \text{ m}}{10 \text{ s}} = \boxed{5 \frac{\text{m}}{\text{s}}}$$

$$\text{f) Avg Total speed} = \frac{(40 \text{ m} + 50 \text{ m})}{(5 \text{ s} + 10 \text{ s})} = \frac{90 \text{ m}}{15 \text{ s}} = \boxed{6 \frac{\text{m}}{\text{s}}}$$

$$\text{g) Disp.} = \boxed{+40 \text{ m}}$$

$$\text{h) Disp} = \boxed{-50 \text{ m}}$$

$$\text{i) Total Disp.} = 40 \text{ m} - 50 \text{ m} = \boxed{-10 \text{ m}}$$

$$\text{j) Avg Vel} = \frac{+40 \text{ m}}{5 \text{ s}} = \boxed{+8 \frac{\text{m}}{\text{s}}}$$

$$\text{k) Avg. Vel} = \frac{-50 \text{ m}}{10 \text{ s}} = \boxed{-5 \frac{\text{m}}{\text{s}}}$$

$$\text{l) Avg Total Vel} = \frac{(40 \text{ m} - 50 \text{ m})}{(5 \text{ s} + 10 \text{ s})} = \frac{-10 \text{ m}}{15 \text{ s}} = \boxed{-0.67 \frac{\text{m}}{\text{s}}}$$

$$31) -49 \text{ m}, 3.27 \text{ m/s}$$

- 32) a) 30 m  
b) 50 m  
c) 80 m  
d) 3 m/s  
e) 10 m/s  
f) 5.3 m/s  
g) +30 m  
h) -50 m  
i) -70 m  
j) +3  $\frac{\text{m}}{\text{s}}$   
k) -10  $\frac{\text{m}}{\text{s}}$   
l) -1.3  $\frac{\text{m}}{\text{s}}$

$$33) 29 \text{ m}, 3.2 \frac{\text{m}}{\text{s}}$$

- 34) a) 65 m  
b) 15 m  
c) 90 m  
d) 8 m/s  
e) 5 m/s  
f) 6 m/s  
g) +40 m  
h) -50 m  
i) -10 m  
j) +8 m/s  
k) -5 m/s

$$l) -0.67 \frac{\text{m}}{\text{s}}$$

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