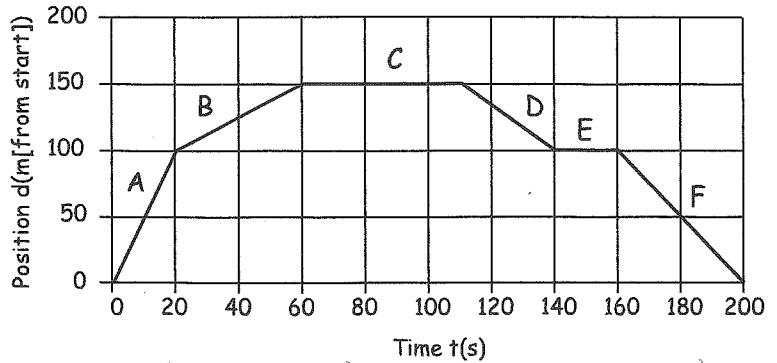


PART A

Answer questions 1 to 4 in the space provided. If more room is needed use the back of this sheet or a separate sheet.

The following graph shows the motion of an inspector on a refrigerator assembly line. Position zero is the start of the assembly line. Use positive to represent directions away from, and negative to represent directions toward, the start.

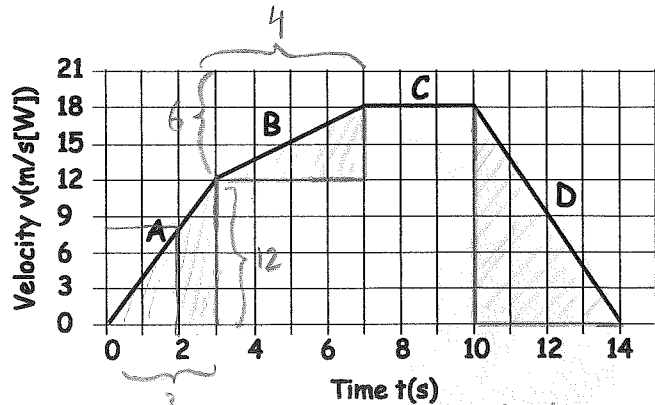


1. How far is the inspector from the starting point after: (read off graph)
- (a) 20 s 100m
 - (b) 40 s 125m
 - (c) 80 s 150m
2. When is the inspector at the following positions: (read off graph)
- (a) 50 m 10 and 180 s
 - (b) 150 m 60-110s
 - (c) 125 m 40 and 125s
3. What is the inspector's velocity during each of the lettered intervals? (d-t graph & slope)
- | | | | |
|---|----------------|---|----------------|
| A | <u>5m/s</u> | D | <u>-1.7m/s</u> |
| B | <u>1.25m/s</u> | E | <u>0</u> |
| C | <u>0</u> | F | <u>-2.5m/s</u> |
4. For the entire trip what is the inspector's:
- | | | | |
|------------------|---------------|------------------------|--------------------|
| (i) displacement | (ii) distance | (iii) average velocity | (iv) average speed |
| <u>0</u> | <u>300m</u> | <u>0</u> | <u>1.5m/s</u> |

PART B

Answer questions 5 and 6 in the space provided. If more room is needed use the back of this sheet or a separate sheet.

The following shows the velocity-time graph for a dandelion seed blown by the wind. The seed's velocity changes during the four intervals A, B, C, and D.



5. Calculate:
- (a) the acceleration during each interval. (slope)
- A $\frac{12}{3} = 4 \text{ m/s}^2 [\text{W}]$
 - B $\frac{6}{4} = 1.5 \text{ m/s}^2 [\text{W}]$
 - C 0
 - D $\frac{-18}{4} = -4.5 \text{ m/s}^2 [\text{W}]$
- (b) the displacement during each interval. (area)
- A $\frac{1}{2}(3)(12) = 18 \text{ m} [\text{W}]$
 - B $\frac{1}{2}(4)(12) + (4)(18) = 60 \text{ m} [\text{W}]$
 - C $(3)(18) = 54 \text{ m} [\text{W}]$
 - D $\frac{1}{2}(4)(18) = 36 \text{ m} [\text{W}]$
- (c) the final position of the dandelion seed.
- all displacements added
 $18 + 60 + 54 + 36 = 168 \text{ m} [\text{W}]$ of starting position
6. What is the seed's (i) speed and (ii) velocity at each of the following times:
- | | | | | | |
|---------|----------------------|---------|-----------------------|----------|----------------------|
| (a) 2 s | (i) <u>8m/s</u> | (b) 8 s | (i) <u>18m/s</u> | (c) 12 s | (i) <u>9m/s</u> |
| | (ii) <u>8m/s [W]</u> | | (ii) <u>18m/s [W]</u> | | (ii) <u>9m/s [W]</u> |