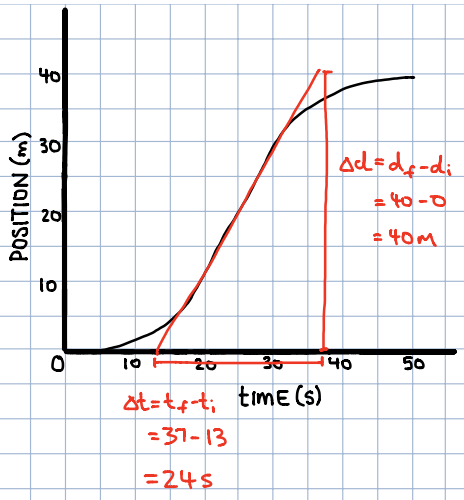
b)



$V = \text{SLOPE}$

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

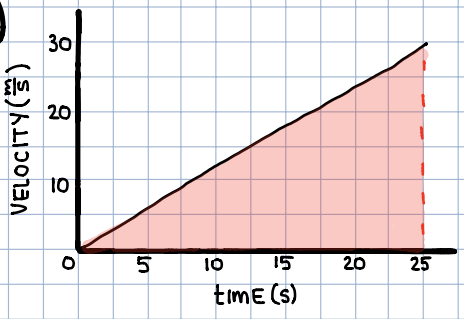
$= \frac{40}{24}$

$= 1.67 \frac{m}{s}$

c) BETWEEN 0 AND 25s (SLOPE IS INCREASING)

d) BETWEEN 25s AND 50s (SLOPE IS DECREASING)

5. a)

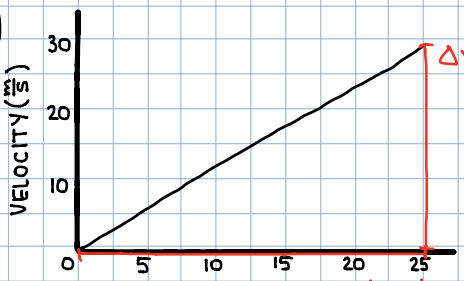


$d = \text{AREA}$

$= \frac{1}{2}(25)(30)$

$= 375\,m$

b)



$\Delta v = v_f - v_i$

$= 30 - 0$

$= 30 \frac{m}{s}$

$\Delta t = t_f - t_i$

$= 25 - 0$

$= 25s$

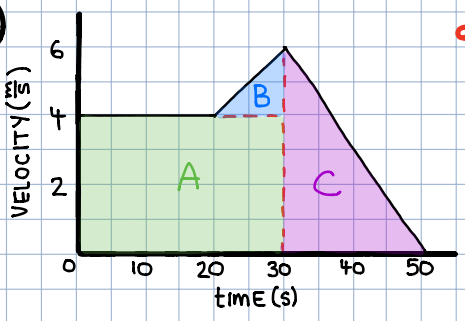
$a = \text{SLOPE}$

$= \frac{\Delta v}{\Delta t}$

$= \frac{30}{25}$

$= 1.2 \frac{m}{s^2}$

6. a)



d = AREA

$= \text{AREA}_A + \text{AREA}_B + \text{AREA}_C$

$= (30)(4) + \frac{1}{2}(10)(2) + \frac{1}{2}(20)(6)$

$= 120 + 10 + 60$

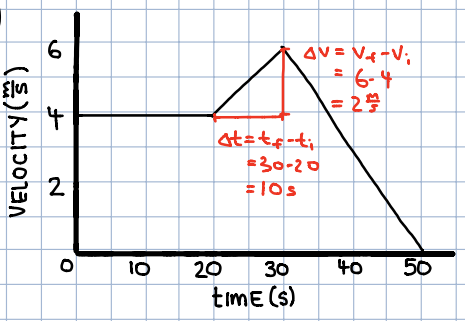
$= 190\text{m}$

b) MOVING IN THE POSITIVE DIRECTION AT A CONSTANT SPEED OF $4\frac{m}{s}$.

c) POSITIVE DIRECTION: FROM 0 TO 50s (I.E. THE WHOLE TIME)

NEGATIVE DIRECTION: NEVER

d)



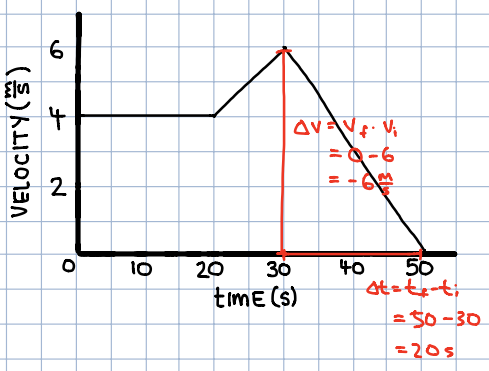
a = SLOPE

$= \frac{\Delta v}{\Delta t}$

$= \frac{2}{10}$

$= 0.2\frac{m}{s^2}$

e)



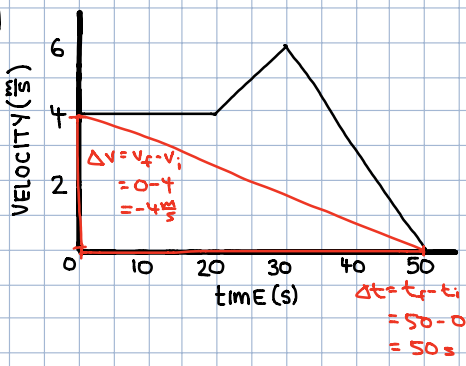
a = SLOPE

$= \frac{\Delta v}{\Delta t}$

$= \frac{-6}{20}$

$= -0.3\frac{m}{s^2}$

f)



a = SLOPE

$= \frac{\Delta v}{\Delta t}$

$= \frac{-4}{50}$

$= -0.08 \frac{m}{s^2}$

g) $v = \frac{d}{t}$

$= \frac{190}{50}$

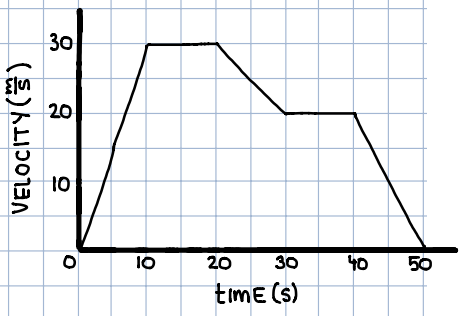
$= 3.8 \frac{m}{s}$

FROM a)

DISTANCE IS EQUAL TO THE MAGNITUDE OF DISPLACEMENT IN THIS QUESTION AS THE OBJECT DOES NOT CHANGE DIRECTION.

7. a) BETWEEN 10s AND 20s

b) BETWEEN 0 AND 10s (SLOPE IS GREATEST)

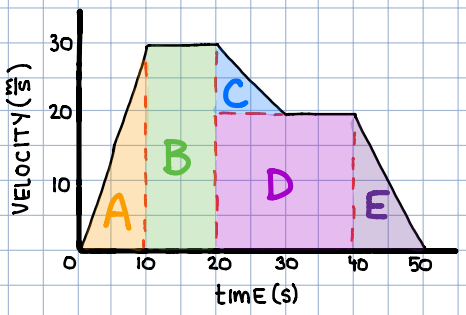


c) BETWEEN 10s AND 20s AND BETWEEN 30s AND 40s (SLOPE IS ZERO)

d) BETWEEN 20s AND 30s AND BETWEEN 40s AND 50s (VELOCITY IS POSITIVE AND SLOPE IS NEGATIVE)

*NEGATIVE ACCELERATION DOES NOT NECESSARILY MEAN THE OBJECT IS SLOWING DOWN. IT DEPENDS ON THE DIRECTION OF THE VELOCITY.

e)



$d = \text{AREA}$

$= \text{AREA}_A + \text{AREA}_B + \text{AREA}_C + \text{AREA}_D + \text{AREA}_E$

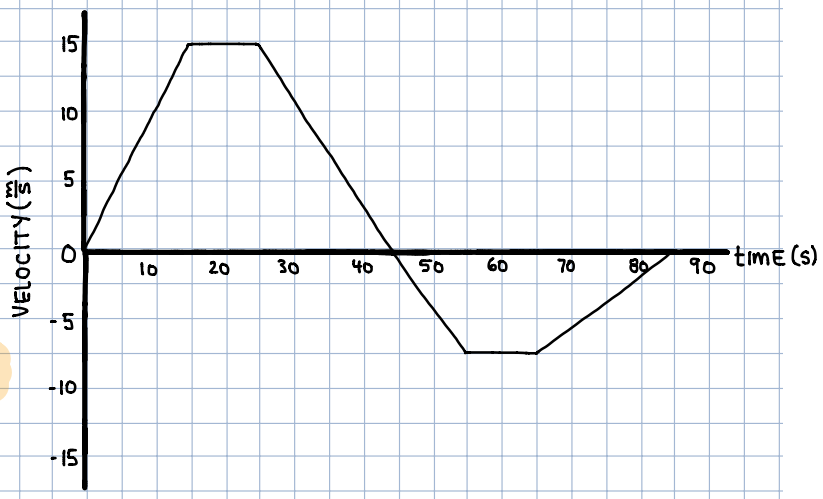
$= \frac{1}{2}(10)(30) + (10)(30) + \frac{1}{2}(10)(10) + (20)(20) + \frac{1}{2}(10)(20)$

$= 150 + 300 + 50 + 400 + 100$

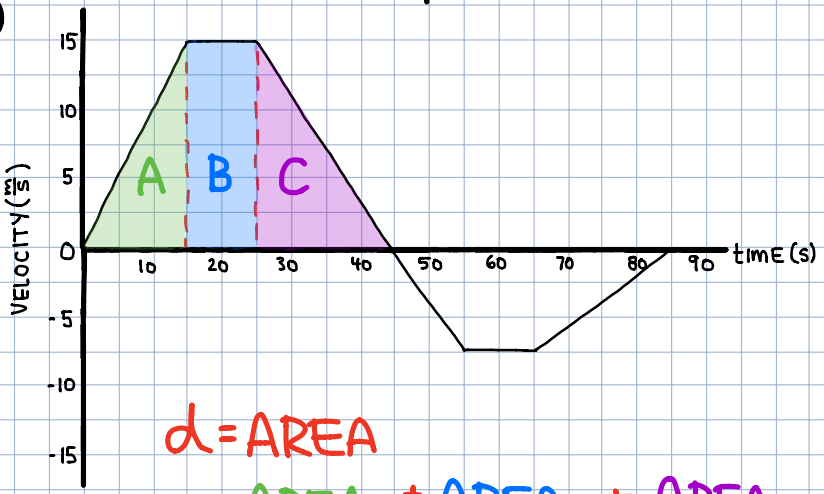
$= 1000 \text{ m}$

8. a) BETWEEN 0 AND 45 s

b) BETWEEN 45s AND 85s



c)



$d = \text{AREA}$

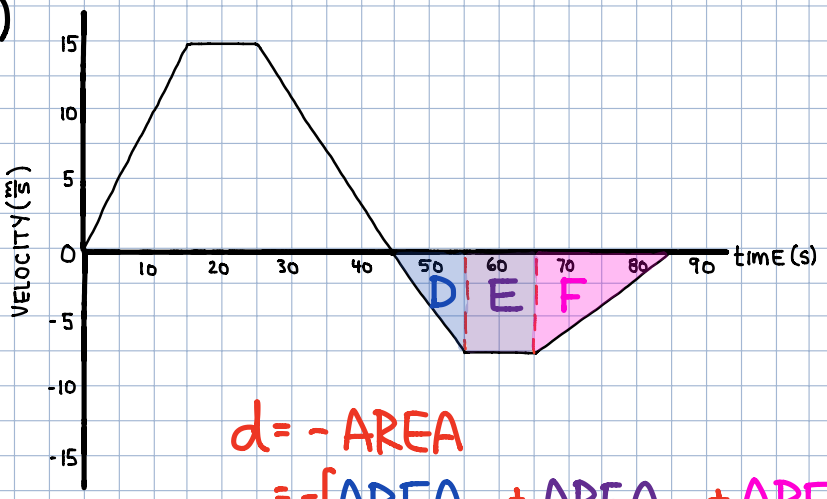
$= \text{AREA}_A + \text{AREA}_B + \text{AREA}_C$

$= \frac{1}{2}(15)(15) + (10)(15) + \frac{1}{2}(20)(15)$

$= 112.5 + 150 + 150$

$= 412.5 \text{ m}$

d)



$d = -\text{AREA}$

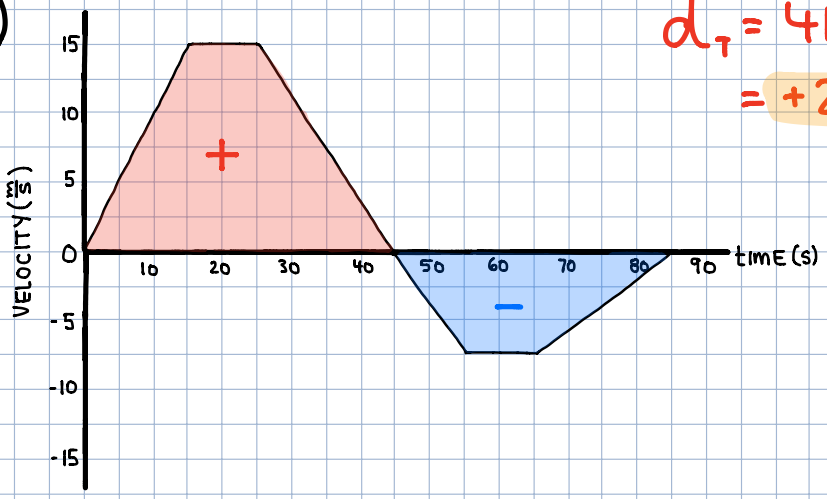
$= -[\text{AREA}_D + \text{AREA}_E + \text{AREA}_F]$

$= -\left[\frac{1}{2}(10)(7.5) + (10)(7.5) + \frac{1}{2}(20)(7.5)\right]$

$= -[37.5 + 75 + 75]$

$= -187.5\ m$

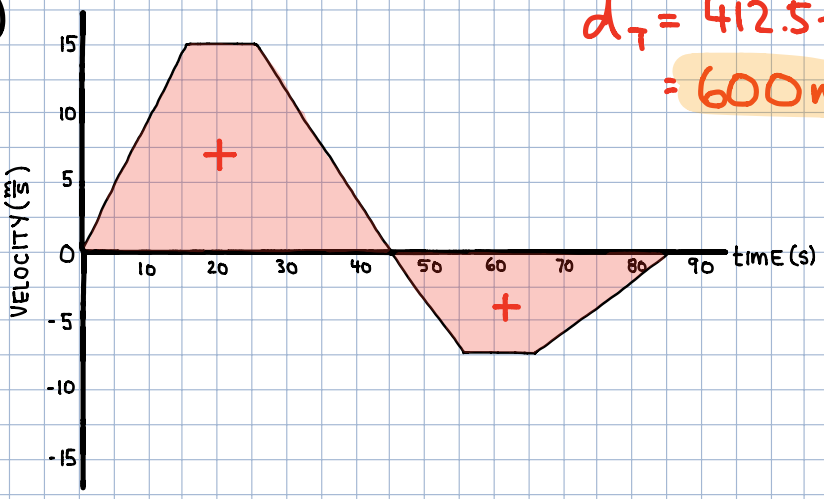
e)



$\vec{d}_T = 412.5 - 187.5$

$= +225\ m$

f)



$d_T = 412.5 + 187.5$

$= 600\,m$

g) $\vec{v} = \frac{\vec{d}}{t}$

$= \frac{225}{85}$

$= 2.65\ \frac{m}{s}$