Author: Manishaa Senthilkumaran

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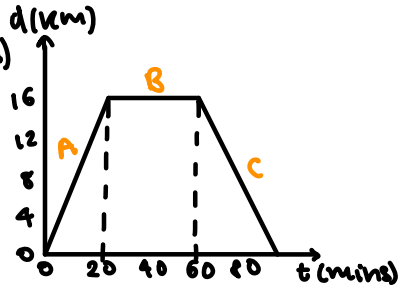
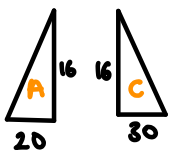
9.1 Displacement - time graphs

1) a)





20mins → 1/3 hr
30mins → 1/2 hr

Velocity of A = $16 \div \frac{1}{3} = 48 \text{ kmh}^{-1}$

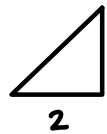
Velocity of B = 0 kmh^{-1}

Velocity of C = $-16 \div \frac{1}{2} = -32 \text{ kmh}^{-1}$

b) 0 kmh^{-1}

c) $32 \div \frac{90}{60} = 21.3 \text{ kmh}^{-1}$

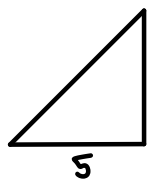
a)



$\frac{1}{3} \div 2 = \frac{1}{6}$

$65 \div \frac{1}{6} = 390$ miles

b)

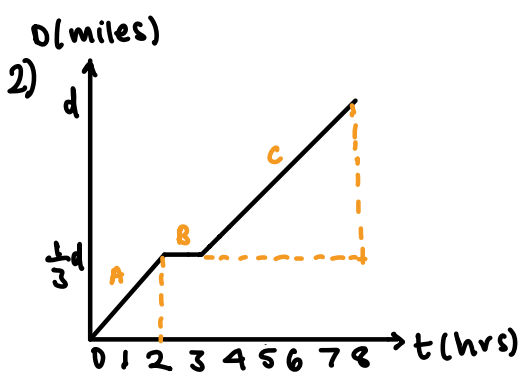


$\frac{2}{3} \div 5 = \frac{2}{15}$

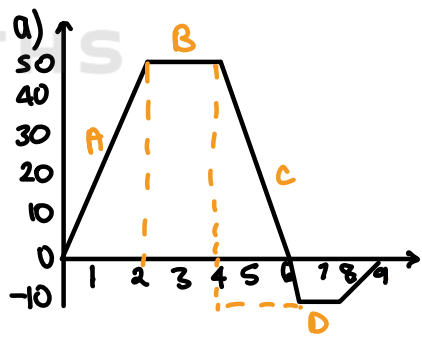
$390 \times \frac{2}{15} = 52$ mph

c) $\frac{390}{8} = 48.75$ mph

2)



3) a)



Velocity of A = $\frac{50}{2}$

$= 25 \text{ kmh}^{-1}$

Velocity of B = $0\ kmh^{-1}$

Velocity of C = $-\frac{50--10}{2}$

$= -30\ kmh^{-1}$

Velocity of D = $0\ kmh^{-1}$

Velocity of E = $\frac{10}{1} = 10\ kmh^{-1}$

b) 2hrs + 2hrs + 1hr + 40mins

= 5hrs 40mins

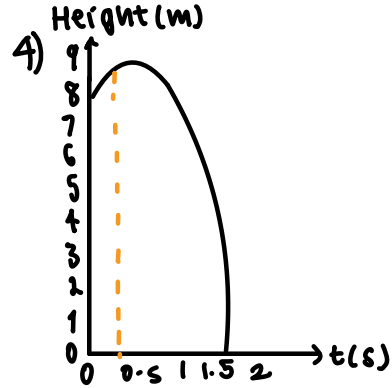
c) $t = \frac{d}{s} = \frac{20}{25} = \frac{4}{5} = 0.8\ hrs$

$0.8 \times 60 = 48\ mins$

$5hr - 48mins = 4hrs\ 12mins$

d) Average speed = $\frac{50+60+10}{9} = 13.3\ kmh$

4)



a) 8m

b) 8.5m, 0.3s

c) $0\ ms^{-1}$

d) i) She travels upwards and her speed decreases

ii) She travels downwards and her speed increases