

$$\textcircled{1} \quad v = 850 \frac{\text{km}}{\text{h}} \quad d = 140 \text{ m} \quad t = ?$$

$$v = \frac{d}{t} \quad d = vt$$

$$t = \frac{d}{v} = \frac{(0.140 \frac{\text{km}}{\text{h}})}{(850 \frac{\text{km}}{\text{h}})} = \frac{(0.140 \frac{\text{km}}{\text{h}})}{(0.236 \frac{\text{km}}{\text{s}})} = 0.593 \text{ s}$$

$$\frac{850 \text{ km}}{\text{h}} \cdot \frac{1 \text{ h}}{3600 \text{ s}} = 0.236 \frac{\text{km}}{\text{s}}$$

$$\textcircled{2} \quad v = 60 \quad t = 4 \text{ h}$$

$$v_f = \frac{40 + 60 + 80}{3} = 60 \text{ km/h}$$

$$d = vt = (60 \frac{\text{km}}{\text{h}})(4 \text{ h}) = \boxed{240 \text{ km}}$$

③ $v = 100 \text{ mi/h}$ $D = 16 \text{ mi}$ $t = ?$

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

$1 \text{ mi} = 1609 \text{ m}$
 $100 \text{ mi} = 160900 \text{ m}$
 $v = 160900 \text{ m/h}$
 $v = 446.94 \text{ m/s}$

$$t = \frac{(16 \text{ mi})}{(446.94 \frac{\text{m}}{\text{s}})} = 0.03575 \text{ seg}$$

$$100 \text{ mi} = \frac{1609 \text{ m}}{1 \text{ mi}} = 160900 \frac{\text{m}}{\text{h}}$$

⑤ $D = 8 \text{ km}$ $v = \text{km/h}$
 $t = 12 \text{ min}$ $v = \text{m/s}$
 $t = 720 \text{ seg}$

$$12 \text{ min} \frac{60 \text{ seg}}{1 \text{ min}} = 720 \text{ seg}$$

$$v = \frac{(8 \text{ km})}{(0.2 \text{ hr})} = 40 \text{ km/h}$$

$$12 \text{ min} \frac{0.016 \text{ hr}}{1 \text{ min}} = 0.2 \text{ hr}$$

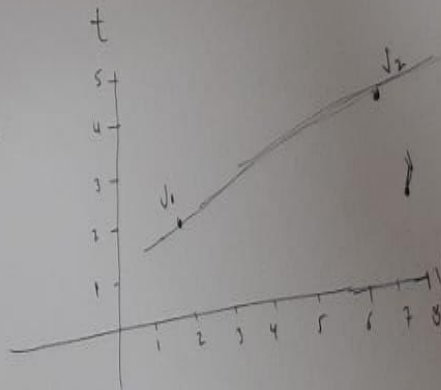
$$v = \frac{(8000 \text{ m})}{(720 \text{ seg})} = 11.11 \text{ m/s}$$

$$8 \text{ km} \frac{1000 \text{ m}}{1 \text{ km}} = 8000 \text{ m}$$

⑥

$$a = \frac{\Delta v}{\Delta t} = \frac{v_2 - v_1}{\Delta t}$$

$$a = \frac{8 \text{ m/s} - 2 \text{ m/s}}{4 \text{ s} - 2 \text{ s}} = \frac{6 \text{ m/s}}{2 \frac{\text{s}}{1}} = 3 \text{ m/s}^2$$



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$$v_1 = 8 \text{ m/s} \quad v_2 = 20 \text{ m/s} \quad t = 3 \text{ s}$$

$$a = \frac{(20 \text{ m/s}) - (8 \text{ m/s})}{(3 \text{ s})} = 4 \text{ m/s}^2$$

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

$$v = a/t$$

8

8

$$t = 4 \text{ s} \quad a = 4 \text{ m/s}^2 \quad v = 2 \text{ m/s}$$

$$v = \frac{(8 \text{ m})}{(4 \text{ s})} = 2 \text{ m/s}$$

$$v = a/t$$

$$d = (4 \text{ s}) \left(2 \frac{\text{m}}{\text{s}} \right) = 8 \text{ m}$$

