



Problemario

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Nombre del tema : Velocidad inicial y final

Parcial IV

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Nombre de la especialidad : Técnico En enfermería general

Semestre IV

Problemario Física

1. $d: 200 \text{ m}$

$T: ?$

$v_F: 900 \text{ km/h}$ v_{FT}

$$d = \frac{1}{2} v_{FT} T \rightarrow d = \frac{v_{FT}}{2} T \Rightarrow \frac{2d}{v_{FT}} = T$$

$$T = \frac{2d}{v_F} = \frac{2(200 \text{ m})}{900 \text{ km/h}} = \frac{2(200 \text{ m})}{250 \text{ m/s}} = 1.6 \text{ s}$$

$900 \text{ km} \rightarrow 1000 \text{ m} \rightarrow 3600 \text{ s}$

$900 \frac{1000 \text{ m}}{1 \text{ km}} \frac{1 \text{ h}}{3600 \text{ s}} = 250 \text{ m/s}$

2. $T = 3 \text{ hrs}$

$d = ?$

$v = 60$

$v_P = \frac{v_1 + v_F + v_C}{2}$

$v_P = \frac{40 + 60 + 80}{2} = 60$

$d = (60)(3 \text{ hrs}) = 180 \text{ m}$

3. $v = 90 \text{ mill/h}$

$d = 18 \text{ m}$

$T = ? \text{ s}$

$90 \frac{\text{mill}}{\text{h}} = \frac{1609 \text{ m}}{1 \text{ mill}} \frac{1 \text{ h}}{3600 \text{ s}} = 40.22 \text{ m/s}$

$T = \frac{D}{v} = \frac{18 \text{ m}}{40.22 \text{ m/s}} = 0.44 \text{ s}$

4. $d: 8\,835\,000\text{ m} = 8835\text{ km}$
 $T: 9.31\text{ hrs}$
 $v:$

$$8835\,000\text{ m} = \frac{1\text{ km}}{1000\text{ m}} = 8835\text{ km}$$

$$v = \frac{d}{T} = \frac{8835\text{ km}}{9.31\text{ h}} = 948.97\text{ km/h}$$

5. $d = 8\text{ km}$
 $T = 12\text{ min}$
 $v = ?\text{ km/h y m/s}$

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

$$12\text{ min} = \frac{1\text{ h}}{60\text{ min}} = 0.2\text{ h}$$

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

$$v = \frac{d}{T} = \frac{8\text{ km}}{0.2\text{ h}} = 40\text{ km/h}$$

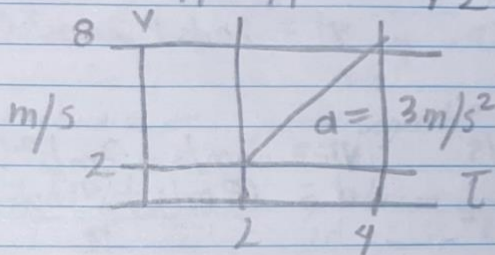
$$v = \frac{8000\text{ m}}{720\text{ s}} = 11.11\text{ m/s}$$

$$6. \quad T_1 = 2s \quad a = \frac{V_F - V_1}{T_F - T_1} = \frac{8 - 2}{4 - 2} = \frac{6}{2} = 3 \text{ m/s}^2$$

$$T_F = 4s$$

$$V_1 = 2 \text{ m/s}$$

$$V_F = 8 \text{ m/s}$$



$$7. \quad V_1 = 6 \text{ m/s}$$

$$V_F = 20 \text{ m/s}$$

$$T = 4s$$

$$a = ?$$

$$d = ?$$

$$V_F = V_1 + aT$$

$$V_1 - V_F = aT$$

$$\frac{V_1 - V_F}{T} = a$$

$$a = \frac{V_1 - V_F}{T}$$

$$a = \frac{6 \text{ m/s} - 20 \text{ m/s}}{4} = -4$$

$$8. \quad a = 2 \text{ m/s}^2 \quad v_F = v_i + at$$

$$t = 3 \text{ s}$$

$$v_i = 2 \text{ m/s}$$

$$v_F = ?$$

$$v_F = 2 \text{ m/s} + 2 \text{ m/s}^2 (3 \text{ s}) = 8 \text{ m/s}$$

$$9. \quad v_i = 5 \text{ m/s}$$

$$t = 12 \text{ s}$$

$$a = 3 \text{ m/s}^2$$

$$v_F = ?$$

$$d = ?$$

$$v_F = 5 \text{ m/s} + 3 \text{ m/s}^2 (12 \text{ s}) = 41 \text{ m/s}$$

$$d = \frac{(5 \text{ m/s} + 41 \text{ m/s}) (12 \text{ s})}{2} = 276 \text{ m}$$

$$10. \quad v_i = 60 \text{ km/h}$$

$$v_F = 30 \text{ km/h}$$

$$t = 10 \text{ s}$$

$$a = ?$$

$$d = ?$$

$$a = \frac{-v_i + v_F}{t}$$

$$a = \frac{-60 + 30}{10} = -3 \text{ km/h}$$

$$d = \frac{(60 \text{ km/h} + 30 \text{ km/h}) (10)}{2} = 450 \text{ m}$$