

Física. UNITAT 1. Solucionari

Activitats. Velocitat i acceleració

1

$$a) \frac{340m}{1s} \times \frac{3600s}{1h} \times \frac{1km}{1000m} = 340 \times 3'6 = \boxed{1.224 km/h}$$

$$b) \frac{300.000m}{1s} \times \frac{3600s}{1h} \times \frac{1km}{1000m} = 300000 \times 3'6 = \boxed{1.080.000 km/h}$$

$$c) \frac{30.000m}{1s} \times \frac{3600s}{1h} \times \frac{1km}{1000m} = 30.000 \times 3'6 = \boxed{108.000 km/h}$$

$$d) \frac{997m}{1s} \times \frac{3600s}{1h} \times \frac{1km}{1000m} = 997 \times 3'6 = \boxed{3589'2 km/h}$$

2

$$a) \dot{d}v? \quad t = 5h$$

espai = 434 Km

$$v = \frac{\text{espai}}{\text{temps}} = \frac{434 km}{5h} = \boxed{86'8 km/h}$$

Per tant, en 5 hora portarà 86'8 Km!!

$$b) \dot{d}t? \quad v_{\text{autobus}} = 86'8 km/h$$

espai = 231 Km

$$t = \frac{\text{espai}}{\text{velocitat}} = \frac{231 km}{86'8 km/h} = \boxed{2'66 h}$$

$$c) \dot{d}v? \text{ en m/s?} \quad t = 2h$$

espai = 1830 Km

$$v = \frac{\text{espai}}{\text{temps}} =$$

$$= \frac{1830 km}{2h} = 915 km/h$$

$$915 km/h \times \frac{1k}{3600s} \times \frac{1000m}{1k} =$$

$$= 915 \div 3'6 = \boxed{254'16 m/s}$$

d) $v = 2.5 \text{ km/h}$
 espai = 20 km
 Temps?

$$t = \frac{\text{espai}}{\text{velocitat}} = \frac{20 \text{ km}}{2.5 \text{ km/h}} = \boxed{8 \text{ h}}$$

e) $v = 2.5 \text{ km/h}$
 $t = 4 \text{ h}$
 espai?

$$\text{espai} = \text{veloc.} \times \text{temps} = 2.5 \text{ km/h} \cdot 4 \text{ h} = \boxed{10 \text{ km}}$$

3 a) $v = 10 \text{ m/s}$ ja?
 $t = 2 \text{ s}$

$$a = \frac{v_f - v_0}{t} = \frac{10 \text{ m/s} - 0 \text{ m/s}}{2 \text{ s}} = \boxed{5 \text{ m/s}^2}$$

b) $v_0 = 80 \text{ km/h}$

$v_f = 120 \text{ km/h}$

$t = 18 \text{ s} \rightarrow$ passara hores $\rightarrow 18 \text{ s} \times \frac{1 \text{ h}}{3600 \text{ s}} = 5 \cdot 10^{-3} \text{ h} = 0.005 \text{ h}$

$$a = \frac{120 \text{ km/h} - 80 \text{ km/h}}{0.005 \text{ h}} = \frac{40 \text{ km/h}}{0.005 \text{ h}} = 8000 \text{ km/h}^2$$

c) Hi ha una desacceleració i disminueix la velocitat.

d) Cap. Com la velocitat és constant, es a dir, no canvia el tracta d'un mru i per tant no hi ha acceleració.