

Άσκ 3.44 (Ποδηλάτες) (Διόρθωση)

$$\frac{\cancel{60}^{40}}{v_1} + \cancel{1.5}^1 = \frac{\cancel{60}^{40}}{v_2}$$

$$v_1 + v_2 = 60$$

$\Rightarrow$

$$\frac{40}{v_1} + 1 = \frac{40}{v_2}$$

$$\Rightarrow \frac{40}{v_1} + 1 = \frac{40}{60 - v_1} \Rightarrow$$

$$\frac{\overbrace{60 - v_1}}{40} + 1 = \frac{\overbrace{v_1(60 - v_1)}}{40}$$

$$\Rightarrow \frac{40}{60 - v_1} \Rightarrow$$

$$40(60 - v_1) + v_1(60 - v_1) = 40v_1 \Rightarrow$$

$$2400 - 40v_1 + 60v_1 - v_1^2 = 40v_1 \Rightarrow$$

$$-v_1^2 - 20v_1 + 2400 = 0 \Rightarrow$$

$$v_1^2 + 20v_1 - 2400 = 0$$

$$\Delta = 20^2 + 4 \cdot 2400 = 400 + 9600 = 10.000$$

$$v_1 = \frac{-20 \pm 100}{2}$$

$$\frac{-20 + 100}{2} = \frac{80}{2} = 40 \text{ km/h}$$

δεξιά

$$\frac{-20 - 100}{2} = -60 \text{ km/h}$$

αριστερά

Άρα: $v_1 = 40 \text{ km/h}$ και $v_2 = 20 \text{ km/h}$.

