

حل مسائل فصل اول بنیہ عربی

$$t_1 = \frac{x_1}{v_1} = \frac{120}{110} = 1.09 \text{ h}$$

$$t_2 = \frac{x_2}{v_2} = \frac{120}{90} = 1.33 \text{ h}$$

$$\Delta t = t_2 - t_1 = 1.33 - 1.09 \text{ (1)}$$

$$\Delta t = 0.24 \text{ h} = \underline{14.6 \text{ min}}$$

$$v = 360 \text{ km} = \frac{360}{3.6} = 100 \frac{\text{m}}{\text{s}} \quad (2)$$

$$x = 1.8 \text{ km} = 1800 \text{ m}$$

$$v^2 - v_0^2 = 2ax \Rightarrow (100)^2 - 0^2 = 2 \times a \times 1800$$

$$\Rightarrow a = \underline{2.7 \frac{\text{m}}{\text{s}^2}}$$

$$v^2 - v_0^2 = 2ax \Rightarrow 15^2 - 9^2 = 2 \times a \times 50 \quad (3) \text{ الف}$$

$$\Rightarrow a = 1.44 \frac{\text{m}}{\text{s}^2}$$

$$v = at + v_0 \Rightarrow 15 = 1.44t + 9 \quad (1)$$

$$\Rightarrow t = 4.1 \text{ s}$$

$$v = at + v_0 \Rightarrow 9 = 1.44t + 0 \quad (2)$$

$$t = 6.25 \text{ s}$$

$$x = \frac{1}{2} at^2 + v_0 t + x_0 \Rightarrow x = \frac{1}{2} \times 1.44 \times (6.25)^2 \quad (3)$$

$$x = 28.1 \text{ m}$$

$$v^2 - v_0^2 = 2gx \Rightarrow \quad (4) \text{ الف}$$

$$-v_0^2 = 2(-9.8) \times 15 \Rightarrow v_0 = 17.1 \frac{\text{m}}{\text{s}}$$

$$v = -gt + v_0 \Rightarrow 0 = -9.8t + 17.1 \frac{\text{m}}{\text{s}} \quad (1)$$

$$\Rightarrow t = 1.74 \text{ s}$$

$$y = -\frac{1}{2}gt^2 + v_0 t + y_0$$

$$0 = -\frac{1}{2}(9.8)t^2 + 12t + 80$$

$$t = \frac{-b \pm \sqrt{b^2 - 4ac}}{a} \Rightarrow t = 5.4 \text{ s}$$

