

Horizontal speed:  $v_h = v \cdot \cos \alpha$  . Vertical speed:  $v_v = v \cdot \sin \alpha$  .

So, we will have:

$$v_v - g \cdot t_1 = 0 \Rightarrow t_1 = \frac{v_v}{g} \Rightarrow$$

$$\Rightarrow t_1 = \frac{25 \cdot \sin 50^\circ}{9.8} \approx 1.95 \text{ s.}$$

$$s = 30 \text{ m}$$

$$s = v_v \cdot t_2 + \frac{g \cdot t_2^2}{2}$$

$$30 = 25 \cdot \sin 50^\circ \cdot t_2 + \frac{9.8 \cdot t_2^2}{2} \Rightarrow 4.9 \cdot t_2^2 + 19.15 \cdot t_2 - 30 = 0 \Rightarrow$$

$$\Rightarrow t_2 = \frac{-19.15 \pm \sqrt{954.765}}{9.8} \Rightarrow t_2 = 5.1 \text{ s.}$$

$$t = 2 \cdot t_1 + t_2 = 2 \cdot 1.95 + 5.1 = 9 \text{ s.}$$

So, we have the distance:

$$d = v_h \cdot t = 9 \cdot 25 \cdot \cos 50^\circ \approx 145 \text{ m.}$$

Answer: 145 meters.