



IN PROJECTILE MOTION
HORIZONTAL VELOCITY IS CONSTANT

$$d = v_x t \quad v_x \text{ is horizontal } v$$

$$= 15\text{ m/s} \cdot 2\text{ s}$$

$$\boxed{d = 30\text{ m}}$$

41. a. Find v_x and v_y

$$\boxed{v_x = 15\text{ m/s}} \quad (\text{it is constant})$$

$$v_y = g t \quad (\text{Free Fall})$$

$$= 10\text{ m/s}^2 \cdot 2\text{ s}$$

$$\boxed{v_y = 20\text{ m/s}}$$

b. SPEED IS THE MAGNITUDE
OF THE RESULTANT

$$s = \sqrt{v_x^2 + v_y^2}$$

$$= \sqrt{(15\text{ m/s})^2 + (20\text{ m/s})^2}$$

$$\boxed{s = 25\text{ m/s}}$$