

2D Equations

↔ Horizontal (no gravity)

$$V_x = \frac{d_x}{t}$$

Variables:

V_x = velocity (m/s)

d_x = displacement (m)

t = time (s)

↕ Vertical (gravity)

$$d_y = V_{iy}t + \frac{1}{2}gt^2$$

$$V_{fy} = V_{iy} + gt$$

$$V_{fy}^2 = V_{iy}^2 + 2gd_y$$

Variables:

d_y = displacement (m)

V_{iy} = initial velocity (m/s)

t = time (s)

g = gravity (-9.8 m/s^2)

V_{fy} = final velocity (m/s)