$$m\vec{a} = \vec{F}.$$

$$\begin{aligned} ma_x &= 0, \\ ma_y &= -mg. \end{aligned}$$

$$
\begin{aligned}
x(t) &= x_0 + v_{x0}t, \\
y(t) &= y_0 + v_{y0}t - \frac{1}{2}gt^2.
\end{aligned}
$$

$$a_x = \frac{\Delta v_x}{\Delta t} = \frac{v_x(t + \Delta t) - v_x(t)}{\Delta t}.$$

$$\frac{v_x(t+\Delta t)-v_x(t)}{\Delta t} = \frac{F_x}{m}.$$

$$v_x(t + \Delta t) = v_x(t) + \Delta t \cdot \frac{F_x}{m}.$$

$$v_x = \frac{x(t + \Delta t) - x(t)}{\Delta t}$$

$$x(t + \Delta t) = x(t) + \Delta t \cdot v_x$$