Tank game

$$x(t) = v_0 \cos(\alpha) t$$

$$y(t) = v_0 \sin(\alpha) t - \frac{1}{2} g t^2$$

where

- α – gun angle,
- v_0 - initial speed,
- t - time,
- g – gravitational acceleration (approximately equal to 9.81).

From above we obtain

$$y(t) = \tan(\alpha) x - \frac{g}{2 v_0^2 \cos(\alpha)^2} x^2$$