

Exam 1 formulas

To be given on exam

$$g=9.80 \text{ m/s}^2$$

$$\text{If } ax^2 + bx + c = 0, \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

For constant a :

$$x = x_o + v_o t + \frac{1}{2} a t^2$$

$$v^2 = v_o^2 + 2a(x - x_o)$$

To be memorized

$$\text{Definition: } v_{ave} = \langle v \rangle = \frac{\Delta x}{\Delta t}$$

$$\text{Definition: } a_{ave} = \langle a \rangle = \frac{\Delta v}{\Delta t}$$

For constant a :

$$v = v_o + at \quad (v(t) \text{ is a straight line when } a \text{ is constant})$$

$$v_{ave} = \langle v \rangle = \frac{v_i + v_f}{2} \quad (\text{since } v \text{ is linear when } a \text{ is constant, the average must be halfway between the beginning and ending velocities})$$