acceleration
kinematic equations
free fall
test example
quiz
acceleration
kinematic equations

1) \[ x = x_0 + v_0 t + \frac{1}{2} at^2 \]
2) \[ v = v_0 + at \]
3) \[ v_{av} = \frac{(v + v_0)}{2} \]
4) \[ x = x_0 + v_{av} t \]
5) \[ v^2 = v_0^2 + 2a(x - x_0) \]
examples
free fall

- \( a = -g; \ g = 9.8 \ \text{m/s}^2 \)
- 1) \( y = y_0 + v_0 t - \frac{1}{2} g t^2 \)
- 2) \( v = v_0 - gt \)
- 3) \( v_{av} = \frac{(v+v_0)}{2} \)
- 4) \( y = y_0 + v_{av} t \)
- 5) \( v^2 = v_0^2 - 2 \ g(y - y_0) \)
examples
Q1 - Answer = c
Q2 - Problem A - Last name A-K

A ball is dropped from a height of 8 m. How long does it take to hit the ground?
Use \( g = 9.8 \, \text{m/s}^2 \).

- a) 13 s
- b) 16 s
- c) 4.9 s
- d) 8.9 s
- e) 12.7 s
Q1 - Answer = c
Q2 - Problem B - Last Name L-Z

A ball is dropped from a height of 12 m. How long does it take to hit the ground? Use \( g = 9.8 \text{ m/s}^2 \).

- a) 13 s
- b) 16 s
- c) 3.1 s
- d) 4.9 s
- e) 7.2 s