

UNIVERSITY OF ALABAMA
Department of Physics and Astronomy

PH 105 LeClair

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Quiz 1

$$\mathbf{a} = \text{const} \quad (|\mathbf{a}| = 9.8 \text{ m/s near earth's surface})$$

$$v(t) = v_o + at$$

$$x(t) = x_o + v_o t + \frac{1}{2}at^2$$

1. If an object has negative velocity and negative acceleration, is it:

- speeding up
- slowing down
- remaining stationary

2. A wombat moves along an x axis. What is the sign of its acceleration in the following situations?

(a) moving in positive direction, increasing speed, (b) moving in positive direction, decreasing speed, (c) moving in negative direction, increasing speed, (d) moving in negative direction, decreasing speed

- a,b,c,d = +, +, -, -
- a,b,c,d = +, -, -, +
- a,b,c,d = +, -, +, -
- a,b,c,d = -, -, +, +

3. Dropping a stone into a deep hole, you find it takes 1 s to reach the bottom. Later, you find a second, deeper hole and a stone takes 3 s to reach the bottom. How much deeper is the second hole?

- $\sqrt{3}$ times deeper
- 3 times deeper
- 9 times deeper
- cannot be determined without the mass of the stone