EXIT TICKET: SUVAT EQUATIONS

1. Which of the following conditions must be true for SUVAT equations to be valid?
   a. Motion with constant acceleration
   b. Motion with varying acceleration
   c. Motion in any direction without restriction
   d. Motion with constant velocity

2. A car accelerates from 10 m/s to 30 m/s with a constant acceleration of 5 m/s².
   a. Which SUVAT equation would you use to find the displacement?

$v = u + at$

$s = \frac{(v+u)}{2}t$

$s = ut + \frac{1}{2}at^2$

$v^2 = u^2 + 2as$

$s = vt - \frac{1}{2}at^2$

   b. Calculate the displacement of the car.

3. Explain in one sentence why SUVAT equations cannot be used for motion with air resistance.

Because the acceleration is constant/changing.

Answer: _____

4. A ball is dropped from rest in a vacuum. Explain why the following equation can be used to calculate the displacement of the ball.

$$s = \frac{1}{2}at^2$$

The ball falls from rest. This means that the initial velocity is _____.

Hence, using $s = ut + \frac{1}{2}at^2$, the equation becomes $s = \frac{1}{2}at^2$

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