

## 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

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2. A car accelerates from 10 m/s to 30 m/s with a constant acceleration of 5 m/s<sup>2</sup>.

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