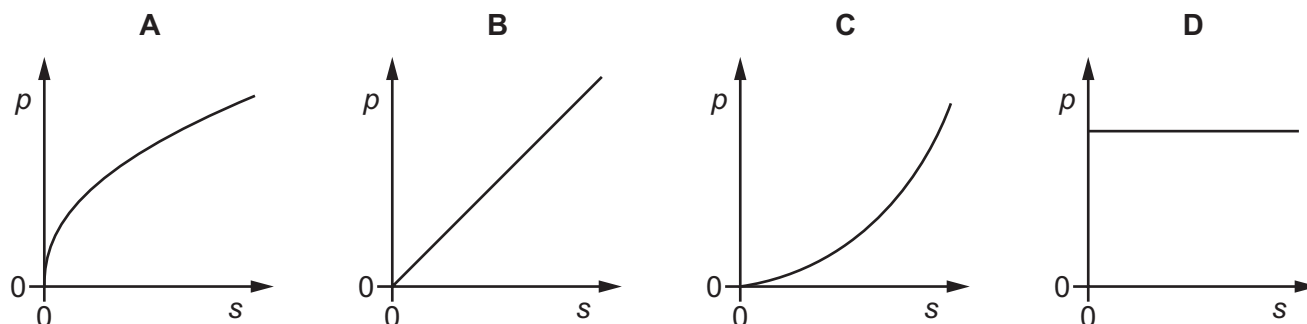


- 8 A car accelerates from rest in a straight line with constant acceleration.

Which graph best represents the variation of the momentum p of the car with the distance s travelled by the car?



- 9 The resultant force F on a raindrop of mass m falling with velocity v is given by the equation

$$F = mg - kv^2$$

where k is a constant and g is the acceleration of free fall.

What is the velocity of the raindrop when it reaches a constant (terminal) velocity?

- A $\sqrt{\frac{k}{mg}}$ B $\frac{k}{mg}$ C $\sqrt{\frac{mg}{k}}$ D $\frac{mg}{k}$

- 10 A stationary toy gun fires a bullet.

Which statement about the bullet and the gun, immediately after firing, is **not** correct?

- A The force exerted on the bullet by the gun has the same magnitude as the force exerted on the gun by the bullet.
- B The force exerted on the bullet by the gun is in the opposite direction to the force exerted on the gun by the bullet.
- C The gun and the bullet have the same magnitude of momentum.
- D The kinetic energy of the gun must equal the kinetic energy of the bullet.