Solve simple kinematics problems (velocity, initial velocity and acceleration formulae)

Maths

Mrs Dennett

Solve simple kinematics problems

1. $v = u + at$

a) Work out v when

i) u = 5, a = 2 and t = 1

ii) u = 4, a = -2 and t = 3

b) Work out u when

i) v = 10, a = 2 and t = 1

ii) v = -6, a = -5 and t = 3

c) Work out a when

i) v = 5, u = 2 and t = 1

ii) v = -4, u = 5 and t = 3

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

a) Work out s when u = 2, a = 4 and t = 1

b) Work out u when s = 18, a = 4 and t = 2

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

a) Work out v when u = 2, a = 1 and s = 6

b) Work out s when v = 6, u = 2 and a = 4

4. An object starts at rest and then accelerates at 8 m/s^2 for 5.5 seconds. Work out the final velocity of the object.

Answers

Solve simple kinematics problems

1. $v = u + at$

a) Work out v when

i) u = 5, a = 2 and t = 1 7

ii) u = 4, a = -2 and t = 3 -2

b) Work out u when

i) v = 10, a = 2 and t = 1 8

ii) v = -6, a = -5 and t = 3 9

c) Work out a when

i) v = 5, u = 2 and t = 1 3

ii) v = -4, u = 5 and t = 3 -3

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

a) Work out s when u = 2, a = 4 and t = 1 4

b) Work out u when s = 18, a = 4 and t = 2 5

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

a) Work out v when u = 2, a = 1 and s = 6 4

b) Work out s when v = 6, u = 2 and a = 4 4

4. An object starts at rest and then accelerates at 8 m/s^2 for 5.5 seconds. Work out the final velocity of the object.

44 m/s