Kinematics Equations



How to do a word problem in physics

- 1) Read the problem
- 2) Underline important information
- 3) Write down your knowns and unknowns
- 4) Determine which equation to use
- 5) Rearrange the equation to solve for your variable
- 6) Plug in your numbers (with units)
- 7) Do some math
- 8) Write your answer with units and circle it

Velocity and Acceleration

$$ec{v}=rac{dec{x}}{dt}$$
 Change of displacement displacement

$$a = \frac{\Delta v}{\Delta t}$$

Kinematic Equations

$$x = x_o + v_o t$$

$$v = v_o + at$$

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

$$v^2 = v_o^2 + 2a(\Delta x)$$

Kinematic Equations

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Sample Problem

A car accelerates from rest to 5 m/s². What is the velocity of the car after 18 seconds?

Sample Problem

A motorcyclist is moving with a velocity of 45 m/s. He slows down with an acceleration of -3.5 m/s². How fast is he traveling after 4 seconds?