The Practise Ground

Class 11 Physics

Newton's Laws & Force

Force, momentum, weight and friction

1

$F = ma$

Newton's 2nd law

Net force = mass × acceleration (newton, N)

2

$p = mv$

Linear momentum

Mass × velocity; force is the rate of change of momentum

3

$W = mg$

Weight

Force of gravity on a mass; g ≈ 9.8 m/s²

4

$f = \mu N$

Limiting friction

μ = coefficient of friction, N = normal reaction

F	m	a	p	μ
force	**mass**	**acceleration**	**momentum**	**friction coeff.**
newton (N)	kg	m/s²	kg·m/s	no unit

The three laws

1st law: a body stays at rest or in uniform motion unless a net force acts on it.

3rd law: every action has an equal and opposite reaction, on a different body.

Quick example

A 5 kg block is pushed by a net force of 20 N.

a = F / m = 20 / 5 = 4 m/s²

Think you've got it? Test yourself.

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