PENANG SANGAM HIGH SCHOOL
YEAR 12 PHYSICS
WEEK 7

Strand	MECHANICS
Sub Strand	MOMENTUM
Content Learning Outcome	At the end of the lesson students should be able to Relate impulse to the change in momentum

Momentum

Momentum is a vector quantity and is given by the formula.
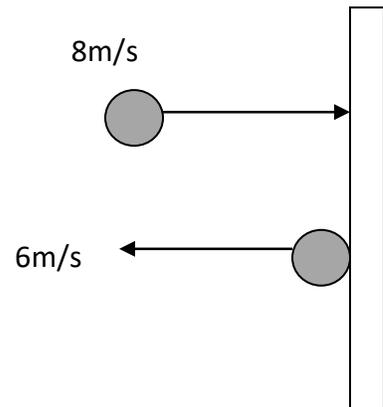
P = m v

The unit of momentum is kg m/s.

Change in momentum is also called impulse. It is given by

ΔP = p_f - p_i

The force generated due to the impact is given by $F = \frac{\Delta P}{\Delta t}$ Where F is the force, and Δt is the impact time.

Always take the direction when adding or subtracting momentum.

A 0.5kg ball hits a wall and rebounds as shown. Find   8m/s

i. The initial momentum of ball
ii. Final momentum of ball
iii. Impulse of ball
iv. the force generated if the impact time was 0.1s   6m/s

i. P= mv
  = 0.5 (8)
  = 4 kgm/s

ii. P= mv
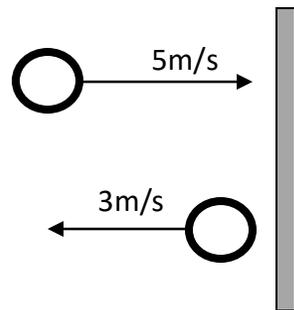 = 0.5 (6)
  = 3 kgm/s

iii. ΔP = p_f - p_i

  = 3 - 4
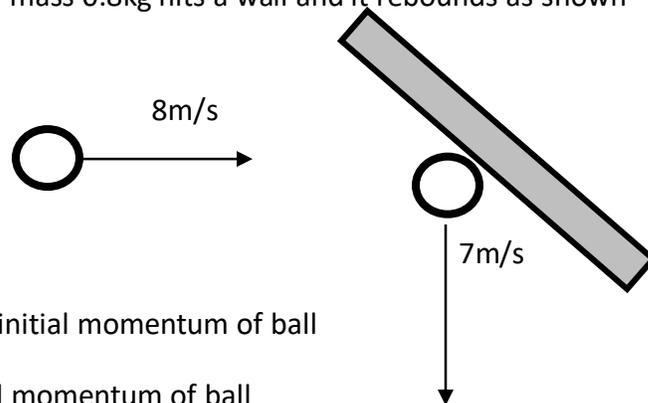
  = 3 + 4

$=$ 7kgm/s

Exercise

1. A ball 0f mass 2kg hits a wall and it rebounds as shown

i.   The initial momentum of ball

ii.   Final momentum of ball

iii.   Impulse of ball

iv. the force generated if the time of impact was 0.4s

1. A ball of mass 0.8kg hits a wall and it rebounds as shown

i.   The initial momentum of ball

ii.   Final momentum of ball

iii.   Impulse of ball

iv.   The force generated if the time of impact was 0.02s