

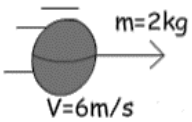
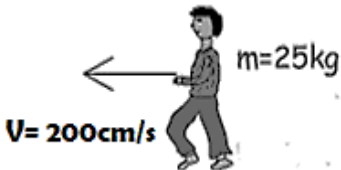
SUVA SANGAM COLLEGE

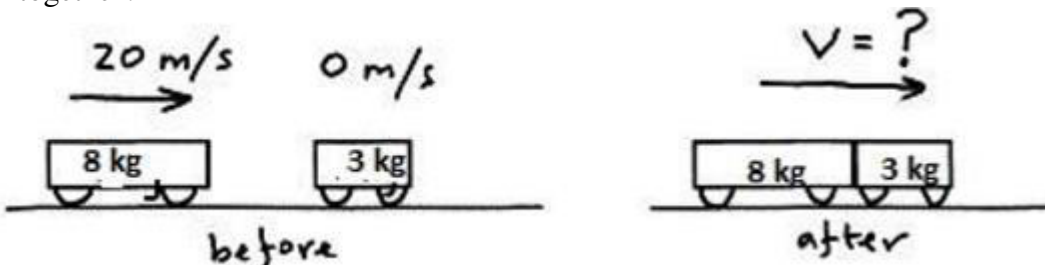
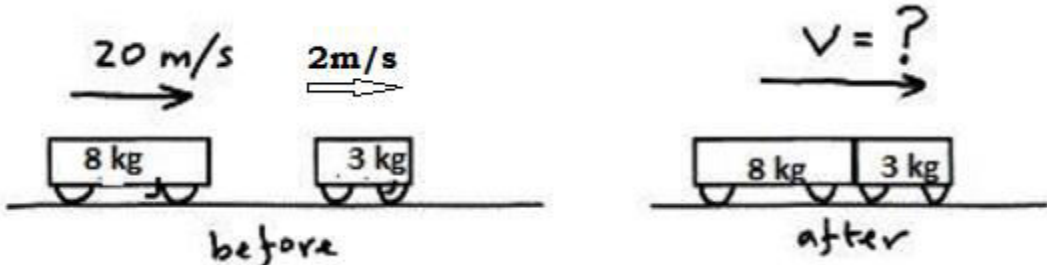
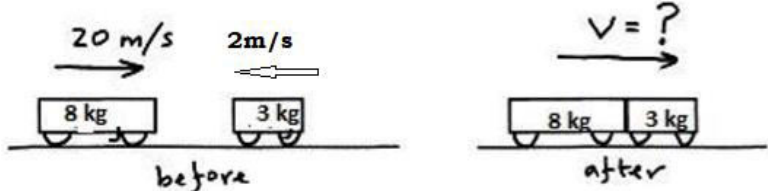
YEAR 11

PHYSICS

WORKSHEET 10

STRAND 1 MECHANICS

NO.	<p>CONCEPT IN BRIEF: MOMENTUM</p> <ul style="list-style-type: none">Momentum is a physical concept that is defined as “moving body”. In other words when we talk about momentum we must have moving object, it must have both mass and velocity. Momentum = Mass x VelocityWe show momentum in physics with “p”, mass with “m” (kg) and velocity with “V” (m/s). Then equation becomes; <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">$p = mV$</div> <ul style="list-style-type: none">The unit of momentum is kgm/s.Momentum is a vector quantity thus it must have direction also.
1	<p>Calculate momentum in the following cases:</p> <p>a. A ball of mass 2 kg moves with velocity of 6 m/s to the east</p> <div style="text-align: center;"></div> <p>b. A child having mass 25 kg and velocity 200 cm/s moves to the west.</p> <div style="text-align: center;"></div>
	<p>CONCEPT IN BRIEF: MOMENTUM</p> <p>THE LAW OF CONSERVATION OF MOMENTUM</p> <p>“When two objects interact the total momentum remains the same provided no external forces are acting (a closed system).”</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto;">The momentum before collision = the momentum after collision.</div>

2.	<p>A toy car of mass 8 kg is travelling at 20 m/s. It collides with a car of mass 3 kg which is stationary. The two cars join together and move off as one object, what is the velocity of the two cars as they move off together?</p>  <p>The diagram shows two toy cars on a horizontal surface. On the left, an 8 kg car is moving to the right at 20 m/s. To its right, a 3 kg car is stationary (0 m/s). Below them is the word 'before'. On the right, the two cars are joined together and moving to the right with a velocity labeled $v = ?$. Below them is the word 'after'.</p>
3.	<p>A toy car of mass 8 kg is travelling at 20 m/s. It collides with a car of mass 3 kg which moving in the same direction with velocity of 2m/s. The two cars join together and move off as one object, what is the velocity of the two cars as they move off together?</p>  <p>The diagram shows two toy cars on a horizontal surface. On the left, an 8 kg car is moving to the right at 20 m/s. To its right, a 3 kg car is moving to the right at 2 m/s. Below them is the word 'before'. On the right, the two cars are joined together and moving to the right with a velocity labeled $v = ?$. Below them is the word 'after'.</p>
4.	<p>A toy car of mass 8 kg is travelling at 20 m/s. It collides with a car of mass 3 kg which moving in the other direction with velocity of 2m/s. The two cars join together and move off as one object, what is the velocity of the two cars as they move off together?</p>  <p>The diagram shows two toy cars on a horizontal surface. On the left, an 8 kg car is moving to the right at 20 m/s. To its right, a 3 kg car is moving to the left at 2 m/s. Below them is the word 'before'. On the right, the two cars are joined together and moving to the right with a velocity labeled $v = ?$. Below them is the word 'after'.</p>