

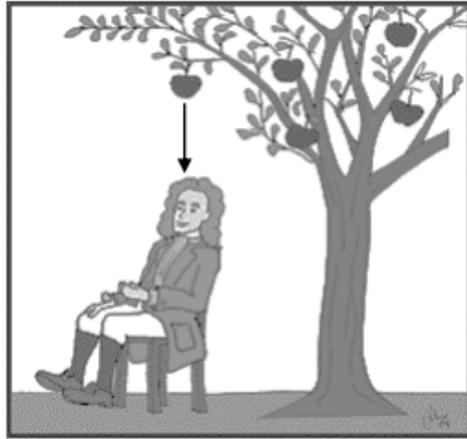
BA SANGAM COLLEGE
YEAR 11
PHYSICS
WORKSHEET 1

STRAND 1: MECHANICS

PART 1: MULTIPLE CHOICE

1. The correct prefix to represent 10^6 is _____.
A. deca B. hecto C. kilo D. mega
2. Which of the following is an example of a fundamental unit?
A. Force B. Ampere C. Joule D. Voltage
3. The number of significant figures in 1020.00 is _____.
A. 2 B. 3 C. 4 D. 6
4. Which of the following quantities represent a vector?

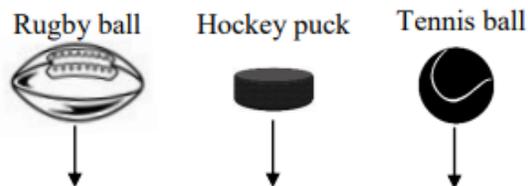
5. The diagram given below represents a schematic diagram of Newton's experience with an apple.



Source: <https://www.aps.org>

Which of the following fundamental forces was discovered by Newton after the apple fell on his head?

- A. Nuclear force
B. Gravitational force
C. Magnetic force
D. Frictional force
6. Which of the following is the SI unit for temperature?
7. A rugby ball, a hockey puck and a tennis ball are released from the same height in the absence of air resistance. Which of the following is true about their acceleration?



- A. They all fall with a constant acceleration.
B. Acceleration of the rugby ball is greater than the other two.
C. Acceleration of the tennis ball is greater than the other two.
D. Acceleration of the hockey puck is greater than the other two.
8. In a free fall the acceleration of an object
- A. varies as it falls.
B. is vertically downwards.
C. is in an upward direction.
D. is perpendicular to the velocity.

PART 11: SHORT ANSWER QUESTIONS

9. Express **0.002019** in standard form. **(1 mark)**

10. The dimensions of a box are given as follows:

length = 27.3 cm	width = 15.5 cm	height = 5.4 cm
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Calculate the volume of the box using the appropriate number of significant figures. **(2 marks)**

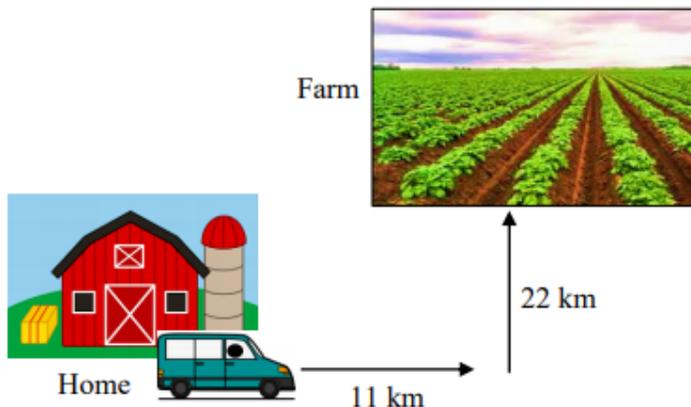
11. A group of Year 11 students investigated the effect of resultant force (F) on the acceleration (a) of a trolley. The results obtained are shown in the table given below.

F (N)	1.0	2.0	3.0	4.0	5.0	6.0
a (ms^{-2})	0.2	0.4	0.6	0.8	1.0	1.2

(i) On the pair of axes provided in the **Answer Booklet**, plot a graph of acceleration versus force. **(2 marks)**

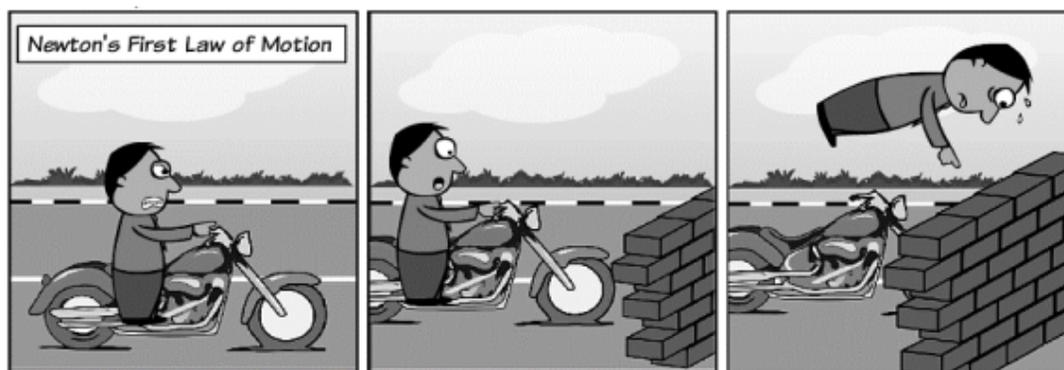
(ii) Identify the type of relationship depicted by the graph in (i) above. **(1 mark)**

12. A vegetable farmer drives 11 km East and then 22 km North from his home to reach his farm as shown in the diagram below.



Calculate the displacement of the vegetable farmer at the end of the journey indicating the correct direction. **(2 marks)**

13. A biker was riding on his bike and accidentally he collided with a wall and flew off as shown in the diagram below.



Source: <http://www.toondoo.com>

Use Newton's First Law to explain why the biker flies off the bike but the bike does not.

(2 marks)

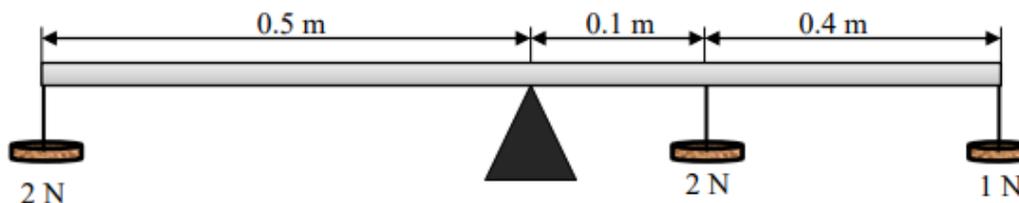
14. In a car race, Anna switches her car of mass 500 kg to run on nitrous oxide fuel. The nitrous oxide allows her to develop 10000 N of force.



- (i) State Newton's Second Law of motion. **(1 mark)**

- (ii) Calculate the acceleration the race car attained when it was running on nitrous oxide fuel. **(2 marks)**

15. Tevita uses a metre ruler to set up an experiment on moments as shown in the diagram below. The pivot is at the centre but the ruler is not balanced.



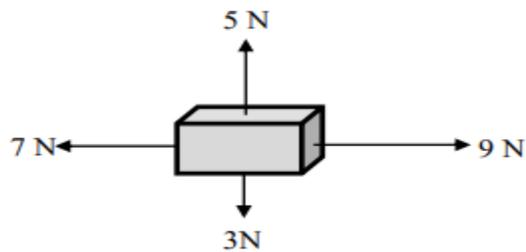
- (i) Show through calculations that the magnitude of the resultant moment is 0.3 Nm. **(3 marks)**

- (ii) State the direction in which the metre ruler turns. **(1 mark)**

16. State the number of significant figures in the following:
(i) 4.838×10^9
(ii) 0.0025
17. Compute the following to the correct number of significant figures or decimal places.
(i) $8.23 - 0.0014$
(ii) 6.15×2.3
18. a) Write the following, using appropriate prefixes:
(i) $4. \times 10^{14}$ g. (ii) 6.3×10^{-4} m.
b) How many significant figures are there in each of the following measurements?
(i) 0.003 (ii) 4.2×10^{-2} (iii) 123.45

19.

The vector diagram given below shows four forces acting on a wooden solid block.



- (i) Determine the magnitude of the resultant force acting on the block.
(ii) State the direction in which the block will move towards.
20. State **one** difference between mass and weight.

THE END