Year 7 Physics: Forces and Motion Worksheet

Lower Secondary · Year 7 · Forces, speed and distance-time graphs

Name: ..... **Class:** ..... **Date:** ..... **Score: / 39**

Section A: Forces [12 marks]

push | pull | friction | gravity | weight | air resistance | balanced | unbalanced

1 Use words from the box to complete the sentences. You may use a word more than once.

(a) A force is a ..... or a ..... . **[2]**

(b) The force that slows things down when surfaces rub together is ..... . **[1]**

(c) The force that pulls objects towards the Earth is ..... . On an object it is called its ..... . **[2]**

(d) When forces are ..... an object stays still or moves at a steady speed. **[1]**

2 What unit is force measured in? What instrument measures it? **[2]**

.....

.....

3 Name the force in each situation. **[4]**

Situation	Force
A skydiver falling with the parachute open slows down	
A book stays on a table (force from the table)	
A magnet picks up a paper clip	
A football falls to the ground	

Section B: Balanced and unbalanced forces [9 marks]

4 Describe what happens to the object in each case. **[3]**

Forces on the object	What happens
5 N right and 5 N left	
10 N right and 4 N left	
3 N up and 8 N down	

5 A car engine pushes forward with 600 N. The friction and air resistance total 600 N. Describe the car's motion. **[2]**

6 Explain why a car slows down when the driver takes their foot off the accelerator. **[2]**

7 Give one way friction is useful and one way it is a problem. **[2]**

Section C: Speed [9 marks]

speed = distance ÷ time | distance = speed × time | time = distance ÷ speed

8 Calculate the missing values. **[4]**

Distance	Time	Speed
100 m	20 s	
	5 s	8 m/s
300 km		60 km/h
1500 m	300 s	

9 Sam walks 3 km in 1 hour 30 minutes. Calculate her speed in km/h. **[3]**

10 A train travels at 80 km/h for 2 hours. How far does it go? **[2]**

Section D: Distance-time graphs [9 marks]

11 Describe the motion shown by (a) a straight sloping line, (b) a horizontal line, (c) a steeper sloping line on a distance-time graph. **[3]**

12 A distance-time graph shows a cyclist travelling 200 m in 40 s, stopping for 20 s, then travelling 100 m in 20 s. Calculate her speed in each moving section. **[3]**

13 Describe how you could measure the speed of a trolley rolling down a ramp. **[3]**