Year 7 Physics: Forces and Motion Worksheet - Mark Scheme

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

Section A: Forces [12 marks]

1(a)	push; pull	**2**
1(b)	friction	**1**
1(c)	gravity; weight	**2**
1(d)	balanced	**1**
2	Newtons (N) (1); a newton meter / forcemeter (1).	**2**
3	Air resistance (drag); reaction / support force; magnetic force; gravity / weight. Guidance: 1 mark each.	**4**

Section B: Balanced and unbalanced forces [9 marks]

4	Stays still or constant speed; speeds up / accelerates to the right; accelerates downwards. Guidance: 1 mark each.	**3**
5	The forces are balanced (1) so the car moves at a constant speed in a straight line (1).	**2**
6	The driving force decreases / stops (1) so friction and air resistance are greater and the car slows down (1).	**2**
7	Useful: grip of shoes or tyres / brakes (1). Problem: wears parts away / wastes energy as heat (1).	**2**

Section C: Speed [9 marks]

8	5 m/s; 40 m; 5 hours; 5 m/s. Guidance: 1 mark each.	**4**
9	Time = 1.5 h (1); 3 ÷ 1.5 (1) = 2 km/h (1).	**3**
10	80 × 2 (1) = 160 km (1).	**2**

Section D: Distance-time graphs [9 marks]

11	(a) Constant speed (1). (b) Stationary / not moving (1). (c) Faster speed (1).	**3**
12	First: 200 ÷ 40 = 5 m/s (1). Stopped: 0 m/s (1). Last: 100 ÷ 20 = 5 m/s (1).	**3**
13	Measure the distance with a ruler / metre rule (1). Time it with a stopwatch (1). Calculate speed = distance ÷ time (1).	**3**

Total: 39 marks. Accept any scientifically correct alternative wording.