

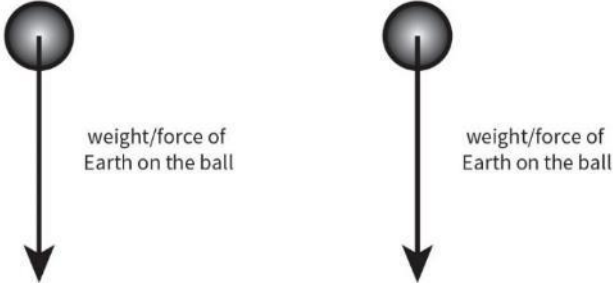
KS3 Physics

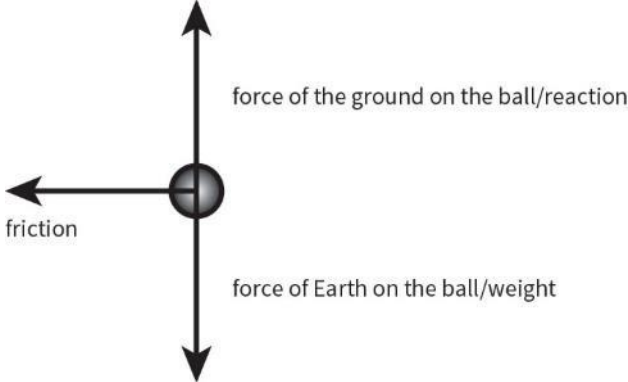
Answers

Chapter 1 – Forces

Question	Answers	Extra information	Mark
1(a)	upwards arrow – upthrust downwards arrow – weight		1 1
(b)	Any two from: <ul style="list-style-type: none">• reaction• drag• upthrust		2
(c)	newton		1
2(a)	when you are sitting on a chair, the chair is – compressed when a tennis ball hits the racquet, the strings are – stretched when you put a book on a table, the table is – compressed when you are standing on the floor, the floor is – compressed		1 1 1 1
(b)	double straight		1 1
3	particles air resistance water resistance bigger closer together		1 1 1 1 1
4(a)	the region where a force acts on a mass		1
(b)	two arrows drawn inwards (one from each person) towards the centre of Earth		1 1
(c)	smaller		1

Question	Answers	Extra information	Mark
5(a)	unbalanced balanced balanced		1 1 1
(b)i	B		1
(b)ii	the forces are the same magnitude (size) the forces are acting in opposite directions		1 1
6(a)	type of surface		1
(b)	height		1
(c)	the same box should be used		1
(d)	there is more friction when you use a carpet so you have to lift the ramp higher for the gravitational force down the ramp to increase to overcome it	Accept words to this effect	1 1
7	the two forces acting are reaction and weight/force of the floor and force of Earth there are bonds between the particles of the floor that behave like springs when the student stands on the floor, the bonds are compressed the force exerted by the floor is equal to the force exerted by Earth		1 1 1 1
8(a)	newtonmeter/spring balance		1
(b)	100 g is a measure of mass not weight		1
(c)	$W = mg$ $= 0.1 \text{ kg} \times 10 \text{ N/kg}$ $= 1 \text{ (N)}$		1 1 1
9	G → C → A → D → E → F → B	C before A A before D D before E E before F F before B	1 1 1 1 1

Question	Answers	Extra information	Mark
<p>10(a)</p>	<p>moving upwards: a dot with a single arrow down labelled weight or the force of Earth on the ball</p> <p>stops momentarily: a dot with a single arrow down labelled weight or the force of Earth on the ball</p> <p>ball when it is moving upwards ball when it has stopped momentarily</p> 		<p>1</p> <p>1</p>
<p>(b)</p>	<p>the ball slows down on the way up because there is an unbalanced force acting on it</p> <p>in the opposite direction to the motion</p> <p>the ball speeds up on the way down because there is an unbalanced force on it</p>		<p>1</p> <p>1</p> <p>1</p>
<p>11(a)</p>	<p>the gravitational field strength decreases</p> <p>weight = mass × g so their weight decreases</p>		<p>1</p> <p>1</p>
<p>(b)</p>	$W = mg, \text{ so } m = \frac{W}{g}$ $= \frac{200 \text{ N}}{2.5 \text{ N}} \text{ kg}$ $= 80 \text{ kg}$	<p>1 mark for 80</p> <p>1 mark for kg</p>	<p>1</p> <p>1</p> <p>2</p>

Question	Answers	Extra information	Mark
12(a)i	<p>upwards arrow – force of the ground on the ball/reaction downwards arrow – force of Earth on the ball/weight arrow pointing left – friction</p> 		1 1 1
(a)ii	<p>force of the ball on the ground (down) force of the ball on the ground (right) force of the ball on Earth (up)</p>		1 1 1
(b)	there is a force of the spanner on the astronaut in the opposite direction		1
(c)	<p>there is a force opposing the motion of the ball (friction) that slows it down there are no forces acting on the astronaut they will continue to move at a steady speed once they have thrown the spanner</p>		1 1 1 1