The force due to gravity on a body is the body’s

A. mass.
B. weight.
C. density.
D. All of the above.
When the mass of an object is compared to its volume, the concept is

A. mass.
B. weight.
C. volume.
D. density.
When we say that 1 kilogram weighs 9.8 N, we mean that

A. 1 kg *is* 9.8 N.
B. it’s true at Earth’s surface.
C. it’s true everywhere.
D. mass and weight are one and the same.
The mass of 1 kilogram of iron

A. is less on the Moon.
B. is the same on the Moon.
C. is greater on the Moon.
D. weighs the same everywhere.
A pair of 3-N and 4-N forces CANNOT have a resultant of

A. 0 N.
B. 1 N.
C. 7 N.
D. But it can have any of the above.
A pair of parallel forces of 8 N and 12 N can have a resultant of

A. 4 N.
B. 20 N.
C. Both of the above.
D. Neither of the above.
The equilibrium rule, $\Sigma F = 0$, applies to

A. objects or systems at rest.
B. objects or systems in uniform motion in a straight line.
C. Both of the above.
D. None of the above.
When you stand on two bathroom scales, with more weight on one scale than on the other, the readings on both scales will

A. cancel to zero.
B. add to equal your weight.
C. add to be somewhat less than your weight.
D. add to be somewhat more than your weight.
When Nellie Newton hangs by a pair of vertical ropes, the tension in each rope will be

A. less than half her weight.
B. half her weight.
C. more than half her weight.
D. equal to her weight.
When an airplane flies horizontally at constant speed in a straight line, the air drag on the plane is

A. less than the amount of thrust.
B. equal to the amount of thrust.
C. more than the amount of thrust.
D. None of the above.
When an airplane flying horizontally in a straight line gains speed, the thrust on the plane is

A. less than the amount of air drag.
B. equal to the amount of air drag.
C. more than the amount of air drag.
D. None of the above.
The force of friction between materials sliding against each other depends on

A. the kind of materials.
B. the roughness of the materials.
C. the force with which they are pressed together.
D. All of the above.
The difference between speed and velocity mostly involves

A. amount.
B. direction.
C. acceleration.
D. All of the above.
The kind of speed you read on a speedometer is

A. average speed.
B. instantaneous speed.
C. changing speed.
D. constant speed.
Distance traveled is equal to average speed multiplied by

A. distance.
B. time.
C. acceleration.
D. instantaneous speed.
Constant speed in a constant direction is

A. constant velocity.
B. acceleration.
C. Both of the above.
D. Neither of the above.
A hungry bee looking directly ahead sees a flower in a 5-m/s breeze. When it gets to the flower, how fast and in what direction should it fly in order to hover above the flower?

A. The bee should fly 5 m/s into the breeze.
B. The bee should fly 5 m/s away from the breeze.
C. The bee will not be able to fly in a 5-m/s breeze.
D. The bee will not be able to reach the flower.
When a car rounds a curve, it is

A. moving uniformly.
B. accelerating.
C. in rotational equilibrium.
D. changing its speed.
When a bird flies at 8 km/h in an 8-km/h headwind (moving against the wind), the speed of the bird relative to the ground is

A. zero.
B. 8 km/h.
C. 16 km/h.
D. more than 16 km/h.
If a motor vehicle increases its speed by 4 km/h each second, its acceleration is

A. 4 km/h.
B. 4 km/h per second.
C. 4 m/s per second.
D. 4 m/s.
When a ball rolling down an inclined plane gains 4 m/s each second, the acceleration of the ball is

A. 0.
B. 4 m/s.
C. 4 m/s².
D. None of the above.
A body undergoes acceleration whenever there is a change in its

A. speed.
B. velocity.
C. direction.
D. All of the above.
A ball initially at rest rolls along a pair of equal-length tracks A and B. It will roll faster when

A. in the dip of track B.
B. at the end of track B.
C. either in the dip or at the end of track B.
D. at the end of track A.
A ball rolls along equal-length tracks A and B. Due to increased speed in the dip, it will have an overall greater average speed on track

A. A.
B. B.
C. Both the same.
D. Neither of the above.
A ball rolls along equal-length tracks A and B. It will reach the end of track B

A. sooner than along track A.
B. at the same time as along track A.
C. later than along track A.
D. None of these make sense.
If you drop a boulder from a tall cliff, as it falls it will gain

A. 10 m/s of speed each second.
B. more and more speed each second.
C. equal amount of falling distance each second.
D. All of the above.
After being dropped from the top of a high building, a free-falling object has a speed of 30 m/s at one instant. Exactly 1 second earlier, its speed was

A. the same.
B. 10 m/s.
C. 20 m/s.
D. 40 m/s.
Toss a ball straight upward, and each second on the way to the top it

A. loses 10 m/s in speed.
B. accelerates upward.
C. Both of the above.
D. Neither of the above.
When a ball is tossed straight upward, the direction of its acceleration is

A. upward also.
B. downward, toward Earth’s center.
C. actually horizontal.
D. at some sort of a strange angle.
The longest that anyone in your school can be in the air when jumping straight upward, landing at the same place, is

A. less than 1 second.
B. about 1 second.
C. about 2 seconds.
D. more than 2 seconds.