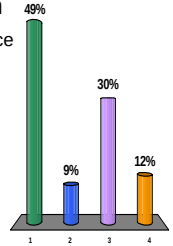
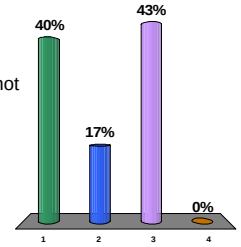
A heavy parachutist has a greater terminal speed compared with a light parachutist with the same size chute, because the heavier person

1. has to fall faster for air resistance to match his weight. ✓
2. is more greatly attracted by gravity to the ground below.
3. has a greater air resistance.
4. has none of the above.



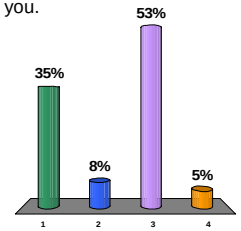
When a 10-kg falling object encounters 10 N of air resistance, its acceleration is

1. less than *g*.
2. *g*.
3. more than *g*.
4. unknown—there is not enough information.



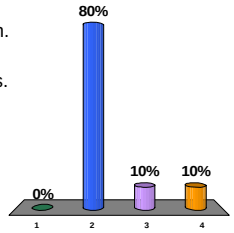
When you jump vertically upward, strictly speaking, you cause Earth to

1. move downward.
2. also move upward with you.
3. remain stationary.
4. move sideways a bit.



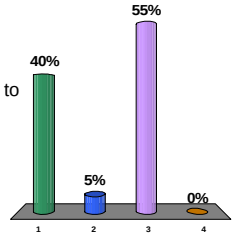
The force that propels a rocket is provided by

1. gravity.
2. its exhaust gases.
3. Newton's laws of motion.
4. the atmosphere against which the rocket pushes.



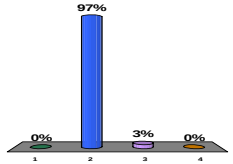
A grasshopper has a head-on collision with a speeding Mack truck. The greatest force acts on the

1. bug.
2. truck.
3. Same amount on each.
4. Not enough information to say.



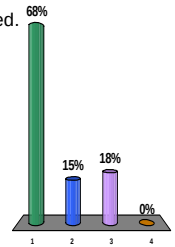
A soccer ball is kicked to a 30-m/s speed. While being kicked, the amount of force of the player's foot on the ball is

1. less than the amount of force on the foot.
2. the same as the amount of force on the foot.
3. more than the amount of force on the foot.
4. None of the above.



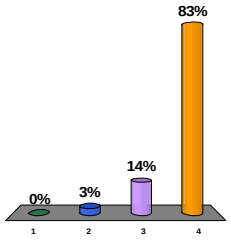
The net force on any object in equilibrium is

1. zero.
2. 10 meters per second squared.
3. equal to its weight.
4. None of the above.



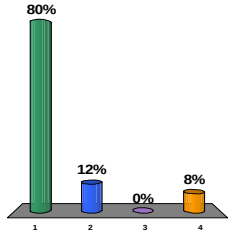
When a 10-kg block is simultaneously pushed eastward with 20 N and westward with 15 N, the net force on the block is

1. 35 N west.
2. 35 N east.
3. 5 N west.
4. 5 N east.



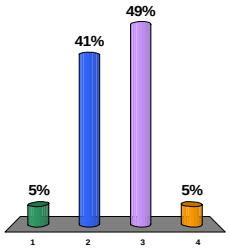
When a 10-kg block is simultaneously pushed eastward with 20 N and westward with 15 N, the acceleration of the block is

1. 0.5 m/s^2 east.
2. 0.5 m/s^2 west.
3. 0.5 m/s^2 east–west.
4. None of the above.



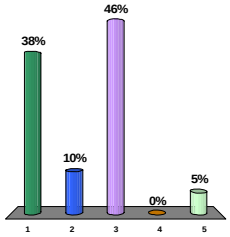
The connection between mass, acceleration, and force is embodied in Newton's

1. first law.
2. second law.
3. third law.
4. law of gravity.



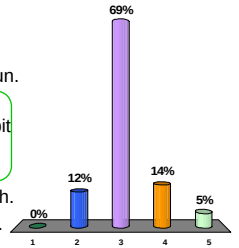
Seat belts and air bags in a car are mostly linked to the effects of Newton's

1. Newton's first law.
2. Newton's second law.
3. Newton's third law.
4. law of gravity.
5. Aristotle's violent motion



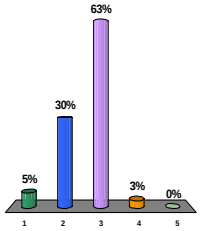
If gravity between the Sun and Earth suddenly vanished, Earth would move in

1. a curved path.
2. a straight-line path directly away from Sun.
3. A straight-line path parallel to Earth's orbit at the time this happened (tangent)
4. an outward spiral path.
5. an inward spiral path.



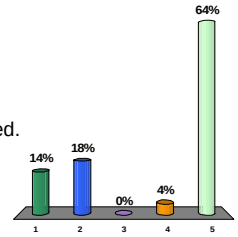
If both the mass and speed of an object are doubled, its momentum

1. remains unchanged.
2. is doubled.
3. is quadrupled.
4. decreases.
5. None of these choices



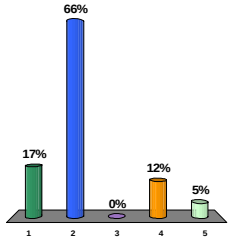
If the mass of an object decreases to half, and its speed doubles, its momentum

1. decreases.
2. is doubled.
3. is quadrupled.
4. None of these
5. remains unchanged.



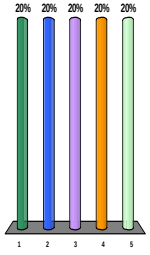
A car and a heavy truck roll down a hill and reach the bottom at the same speed. Compared with the momentum of the car, the momentum of the truck is

1. less.
2. more.
3. None of these.
4. the same.
5. You cannot tell without more information



A 1-kg ball has twice as much speed as a 10-kg ball. Compared with the 1-kg ball, the 10-kg ball has

1. the same momentum.
2. 5 times as much momentum.
3. 10 times as much momentum.
4. 100 times as much momentum.
5. None of these



When both the force and time of contact are doubled, the impulse on an object is

1. decreased.
2. doubled.
3. None of these
4. quadrupled.
5. unchanged.

If the speed of a racing car doubles, what else doubles?

1. Its kinetic energy.
2. Its momentum.
3. Both of the above.
4. Neither of the above.