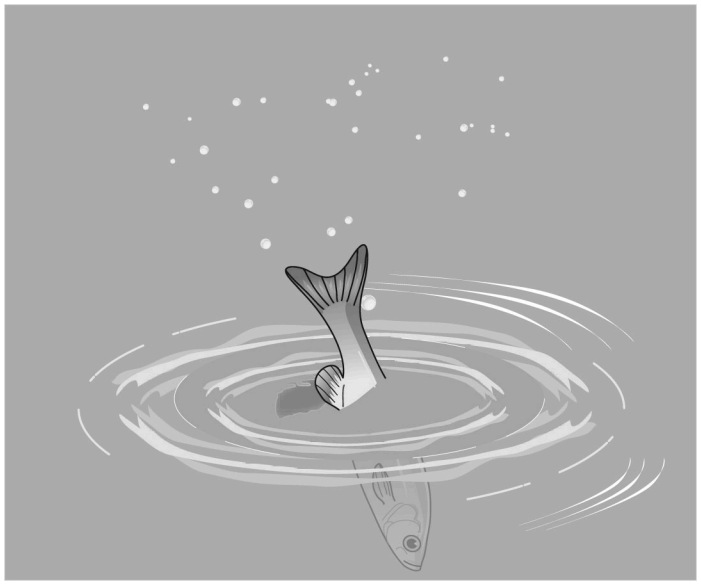
Name:
Class:
Date:

Question #1

When a fish jumps in a lake, waves are produced. These waves spread outward in all directions as shown in the diagram.



Which part of the wave will be *least* affected as the waves approach the shore?

A the wavelength

B the wave speed

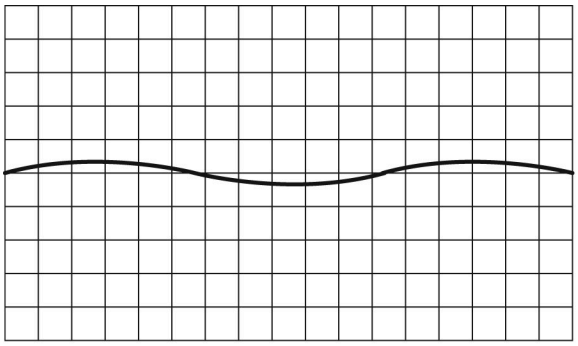
C the wave height

D the wave frequency

Question #2

Jim produced several sound waves while playing his guitar. Which diagram shows the sound wave that Jim produced with the longest wavelength?

A



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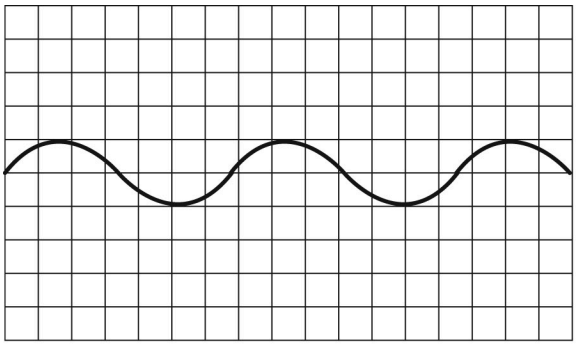
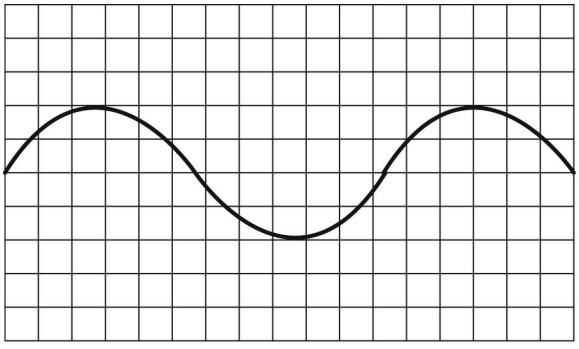


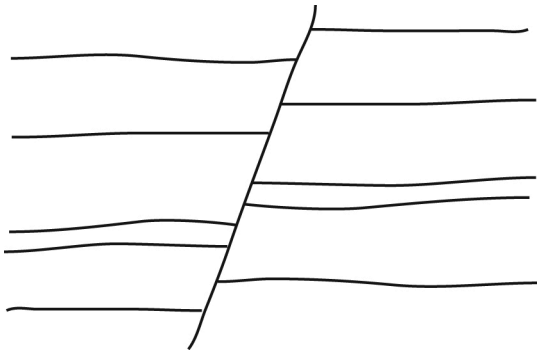
C

D



Question #3

Below is a profile of sedimentary layers in a land area.



The fault shown in the center was *most* likely caused by

A tensional forces.

B dormant volcanoes.

C erosional forces.

D mechanical weathering.

Question #4

Which of these processes can cause layers of rock to be arranged so that the youngest layers are found below older layers?

A melting and hardening

B cooling and heating

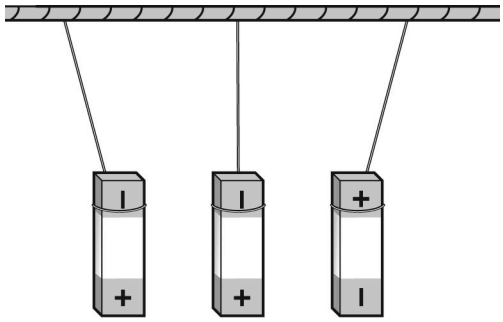
C deposition and cementing

D uplifting and faulting

Question #5

A student wants to study the magnetic forces between three magnets. The student sets up an experiment by hanging three magnets next to each other. Which position will the magnets *most* likely take once the student places the magnets on the strings?

A



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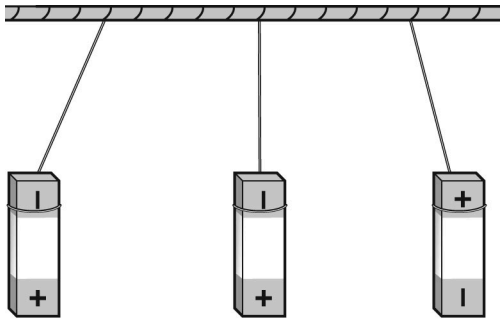

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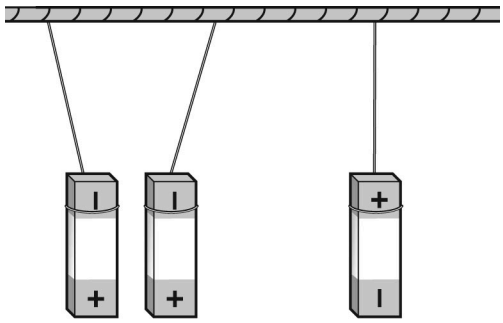

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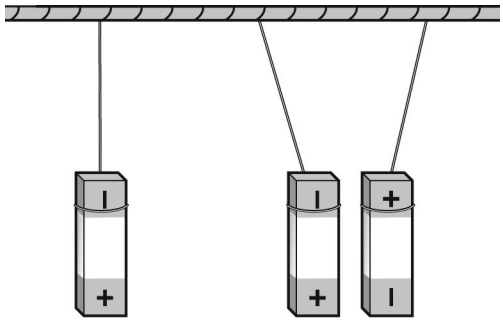


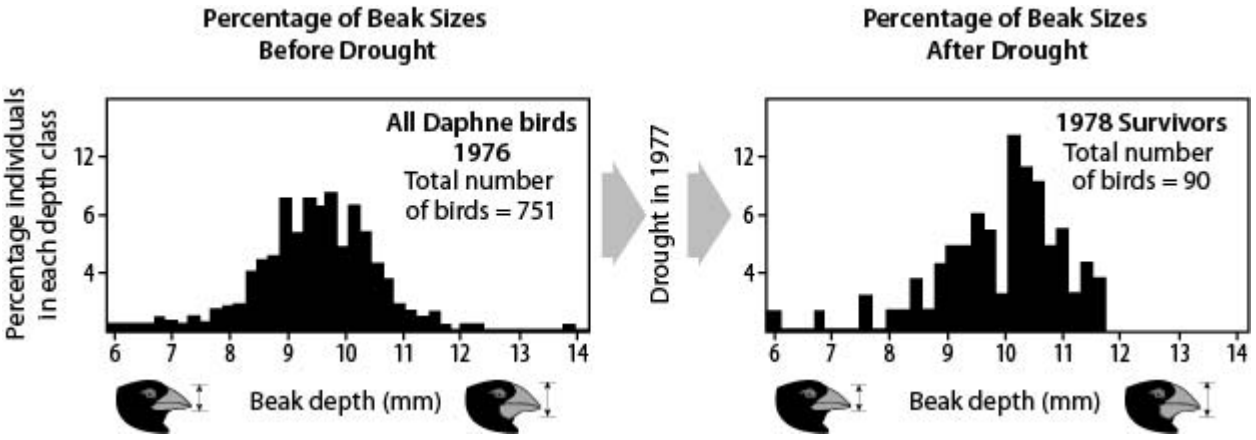
Darwin's finches, also known as Galapagos finches, are a type of bird known for their remarkable diversity in beak sizes (Figure 1). From 1973 to 1985, scientists Peter and Rosemary Grant collected data on the finches and their struggle for survival over a food supply that was affected by weather changes. The Grants wanted to determine if they could see natural selection at work based on which birds survived environmental changes.

In finches, the size and shape of the beak varies among species. Some finches have small, less powerful beaks used to easily pick up and eat small, soft seeds. Other finches have larger, stronger beaks used to crack open larger, hard seeds. During normal weather conditions, both types of seeds are plentiful. However, during times of drought (dry conditions), there are fewer small seeds.

Figure 1

Larger, strong beak Smaller, less powerful

Figure 2 shows the percentages of birds with each beak size in 1976 and in 1978.



Question #6

Following the study period, weather conditions from 1984 to 1985 were wetter than normal. Small, soft seeds were in high number, and larger hard seeds were limited.

Select the statement that explains the expected changes to beak size frequency in finch offspring following this period.

A The frequency of larger sized beaks increased because large beaks are better adapted to eat large, hard seeds.

B The frequency of smaller sized beaks decreased because of competition with other birds adapted to pick up and eat small, soft seeds.

C The frequency of smaller sized beaks increased because small beaks are better adapted to pick up and eat small, soft seeds.

D The frequency of larger sized beaks increased because of the higher number of seeds they are adapted to eat.

Question #7

Select all statements that are consistent with the big bang theory.

A The universe is expanding.

B The universe never changes.

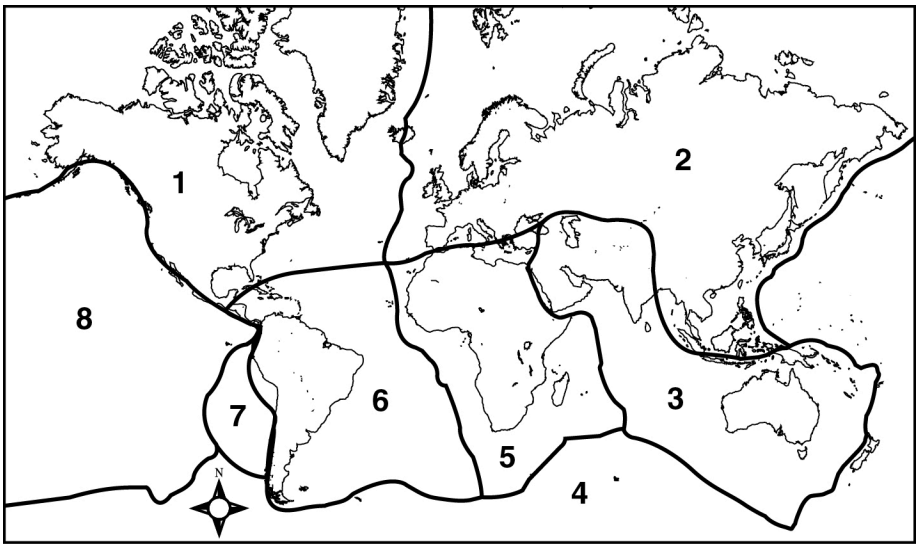
C The universe began in a hot, dense state.

D The universe is about 10 million years old.

E The universe began at a single point and time.

Question #8

Two students played a game to review the names of Earth's major tectonic plates. They used this map as their game board.



The first student tossed a coin onto the map, and it landed on Plate 3. The second student tossed a coin onto the map, and it landed on Plate 6. Which of these correctly identifies the plates that the students' coins landed on?

A

Plate 3	Plate 6
North American Plate	Eurasian Plate

B

Plate 3	Plate 6
Indo-Australian Plate	African Plate

C

Plate 3	Plate 6
Indo-Australian Plate	South American Plate

D

Plate 3	Plate 6
Nazca Plate	South American Plate

Question #9

Electromagnetic waves are sometimes demonstrated by rippling waves in water. However, electromagnetic waves are different from water waves. Which is a characteristic that makes electromagnetic waves and water waves different?

A All water waves have higher frequencies.

B All water waves have longer wavelengths.

C All electromagnetic waves are transverse waves.

D All electromagnetic waves can travel in a vacuum.

Question #10

The Moon revolves around Earth because of a non-contact force. What force of Earth keeps the Moon in orbit?

A electrical force

B magnetic force

C centripetal force

D gravitational force

Question #11

Radio stations can broadcast their signals over great distances. Which property enables a radio station signal to travel far from the source?

A collisions between air molecules

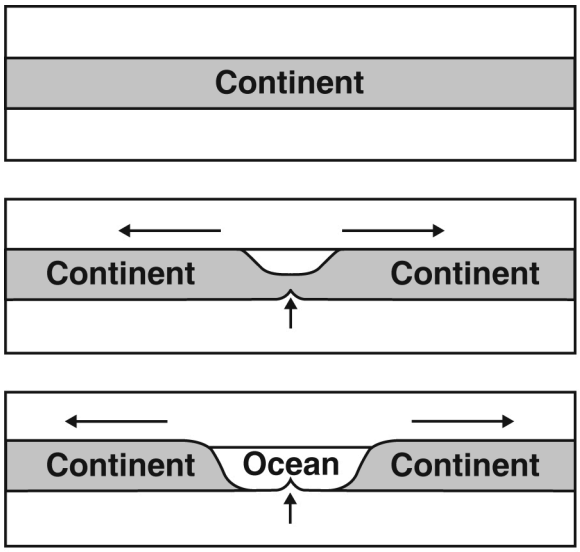
B flow of electrons through antennas

C generation of electromagnetic waves

D oscillations in the magnetic field of Earth

Question #12

The diagram below shows the stages of development of an ocean.



The process above results from

A the ocean forcing the plates apart slowly.

B the ocean forcing the plates apart rapidly.

C convection in the mantle dragging apart the plates slowly.

D convection in the mantle dragging apart the plates rapidly.

Question #13

Biological evolution can occur through all of these *except*

A competition.

B fossilization.

C variation.

D adaptation.

Question #14

Which mass is undergoing the greatest amount of acceleration?

A 1 kg subjected to a force of 1 N

B 1 kg subjected to a force of 100 N

C 100 kg subjected to a force of 1 N

D 100 kg subjected to a force of 100 N

Question #15

To which of the following phenomena do humans contribute the least?

A plate tectonics

B soil erosion

C air pollution

D deforestation

Question #16

There are several different types of rock. Each type of rock is formed under different conditions. How are sedimentary rocks, such as shale and sandstone, formed?

A Particles are heated by the Sun.

B Particles are melted together by magma.

C Particles are compressed into layers.

D Particles are changed into liquids.

Question #17

Which of the following allows the planets to stay in orbit?

A the Moon's gravity

B the Sun's gravity

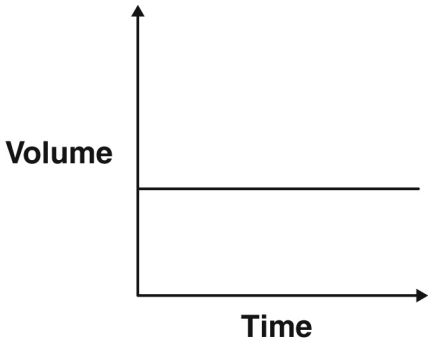
C magnetism

D rotation

Question #18

According to the modern theory of the universe's origin, which graph *best* shows the trend in the volume of the universe over time?

A



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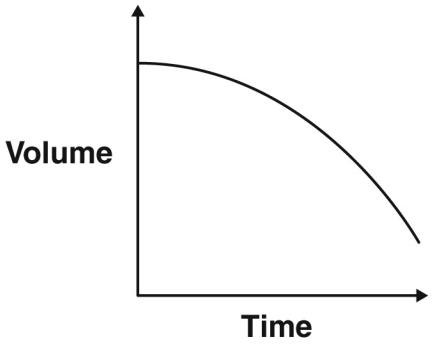

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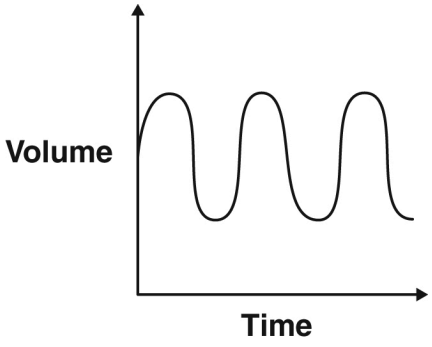
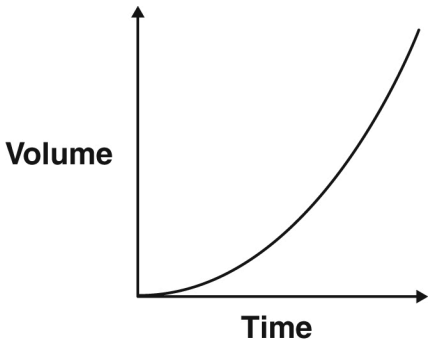


D



Question #19

Mountains are *most* likely formed

A	when glaciers melt.
B	from earthquakes.
C	when land sinks.
D	along tectonic plates.

Question #20

When pressure is released along a fault line, the energy produced spreads as mechanical waves in the form of an earthquake. The mechanical waves transferred to the air become

A	sound.
B	electricity.
C	light.
D	heat.

Question #21

Sound waves can pass through all of these *except*

A air.

B steel.

C water.

D a vacuum.

Question #22

Why do planets stay in orbit around the Sun?

A attraction of gravity

B effect of inertia

C frictional force

D rotational force

Question #23

How do metamorphic and igneous rock, exposed in mountains, become sedimentary rock over time?

A Water erodes landforms and deposits tiny pieces of rock in oceans.

B Volcanoes erupt magma that cools while flowing downward.

C Buried rocks melt and are erupted by distant volcanoes as lava.

D One tectonic plate is forced below another plate, forming new rock.

Question #24

Ocean tides result mainly from

A surface winds.

B radiant heat from the Sun.

C Earth’s tilt on its axis.

D the Moon’s gravitational pull.

Question #25

Which change would increase the magnetic force between these magnets?

A moving the magnets closer together

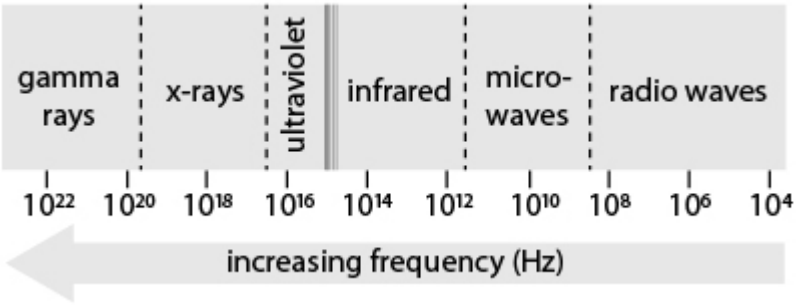
B placing a piece of glass between the magnets

C moving the magnets farther apart

D placing a sheet of steel between the magnets

Question #26

A student produces a diagram model of the electromagnetic spectrum, labeled with frequencies of different types of electromagnetic waves.



The student knows that of the types of electromagnetic waves shown, gamma rays, at the far left, have the highest energy. Which statement does this allow the student to make?

A Infrared waves have more energy than microwaves.

B Radio waves have more energy than microwaves.

C Ultraviolet waves have more energy than x-rays.

D Infrared waves have more energy than ultraviolet waves.

Question #27

What process forms an image in a mirror?

A absorbing light

B reflecting light

C refracting light

D transmitting light

Question #28

According to the fossil record, when did episodes of rapid speciation commonly take place?

A while Earth’s continents were joined

B while Earth’s habitats were stable

C before major climatic changes

D following mass extinctions

Question #29

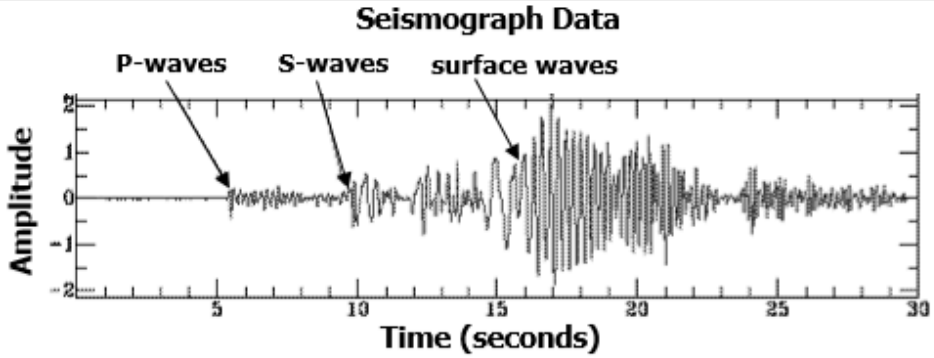
Use the scenario to answer the question.

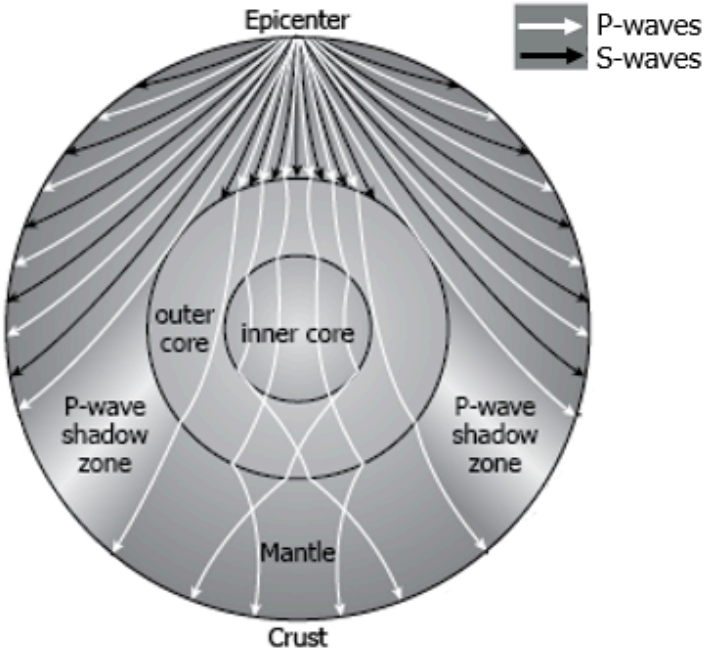
Earth has a radius of approximately 6,371 kilometers. To date, the deepest man-made drill has only been able to dig approximately 12 kilometers toward Earth's core. However, by studying the movement of seismic waves, scientists claim that the make-up of the outer core is liquid, and the inner core is solid.

Earthquakes emit waves of energy collectively referred to as seismic waves. There are two main types of waves: surface waves and body waves. As the name suggests, surface waves move along the surface of the planet; however, body waves can travel through Earth's inner layers.

Body waves can be further classified into two types: primary waves (P-waves) and secondary waves (S-waves). P-waves travel the fastest and can penetrate through both solids and liquids. S-waves travel slower and can only travel through solid materials.

Scientists around the world use sensitive instruments known as seismographs to detect seismic waves that generate from the point on the surface above the origin of an earthquake known as the epicenter. In general, the larger the amplitude of the wave on the seismograph, the more the ground is shaken. The two diagrams illustrate the movement of seismic waves from an earthquake.





Which evidence supports the claim that the outer core is composed of a liquid?

A P-waves reach the outer core first, followed by S-waves.

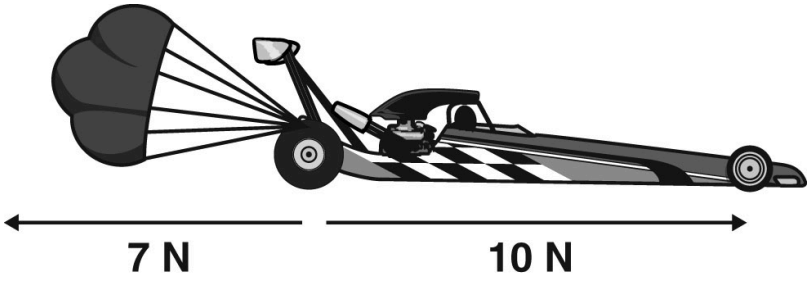
B P-waves can be detected across Earth from the epicenter, while S-waves cannot.

C The outer core deflects both P-waves and S-waves.

D An earthquake generates larger amounts of P-waves than S-waves.

Question #30

Nicolas is playing with his toy car. A parachute in the back of the car is released to help slow down the car.



If the forces act on the car as shown in the picture, what is the net force?

A 

B 

C 

D 

Question	Answer	Standard
1. Navigate--611133	B	8.PS4.1
2. Navigate--621291	C	8.PS4.1
3. Navigate--601732	A	8.ESS2.5
4. Navigate--583865	D	8.ESS2.5
5. Navigate--620366	D	8.PS2.2
6. E268681	C	8.LS4.4
7. Navigate--1081015	A C E	8.ESS1.1
8. Navigate--597093	C	8.ESS2.4
9. Navigate--619904	D	8.PS4.2
10. Navigate--584142	D	8.ESS1.2
11. Navigate--619682	C	8.PS4.3
12. Navigate--588653	C	8.ESS2.4
13. Navigate--595007	B	8.LS4.4
14. Navigate--595014	B	8.PS2.4
15. Navigate--610657	A	8.ESS2.4
16. Navigate--627075	C	8.ESS2.3
17. Navigate--610408	B	8.ESS1.2
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19. Navigate--604100	D	8.ESS2.5
20. Navigate--595545	A	8.PS4.2
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22. Navigate--599247	A	8.ESS1.2
23. Navigate--583818	A	8.ESS2.3
24. Navigate--604540	D	8.ESS1.2
25. Navigate--608042	A	8.PS2.2
26. E267196	A	8.PS4.1
27. Navigate--597377	B	8.PS4.2
28. Navigate--622231	D	8.LS4.1
29. 8.ESS2.2	B	8.ESS2.2
30. 8.PS2.3 Item A	B	8.PS2.3