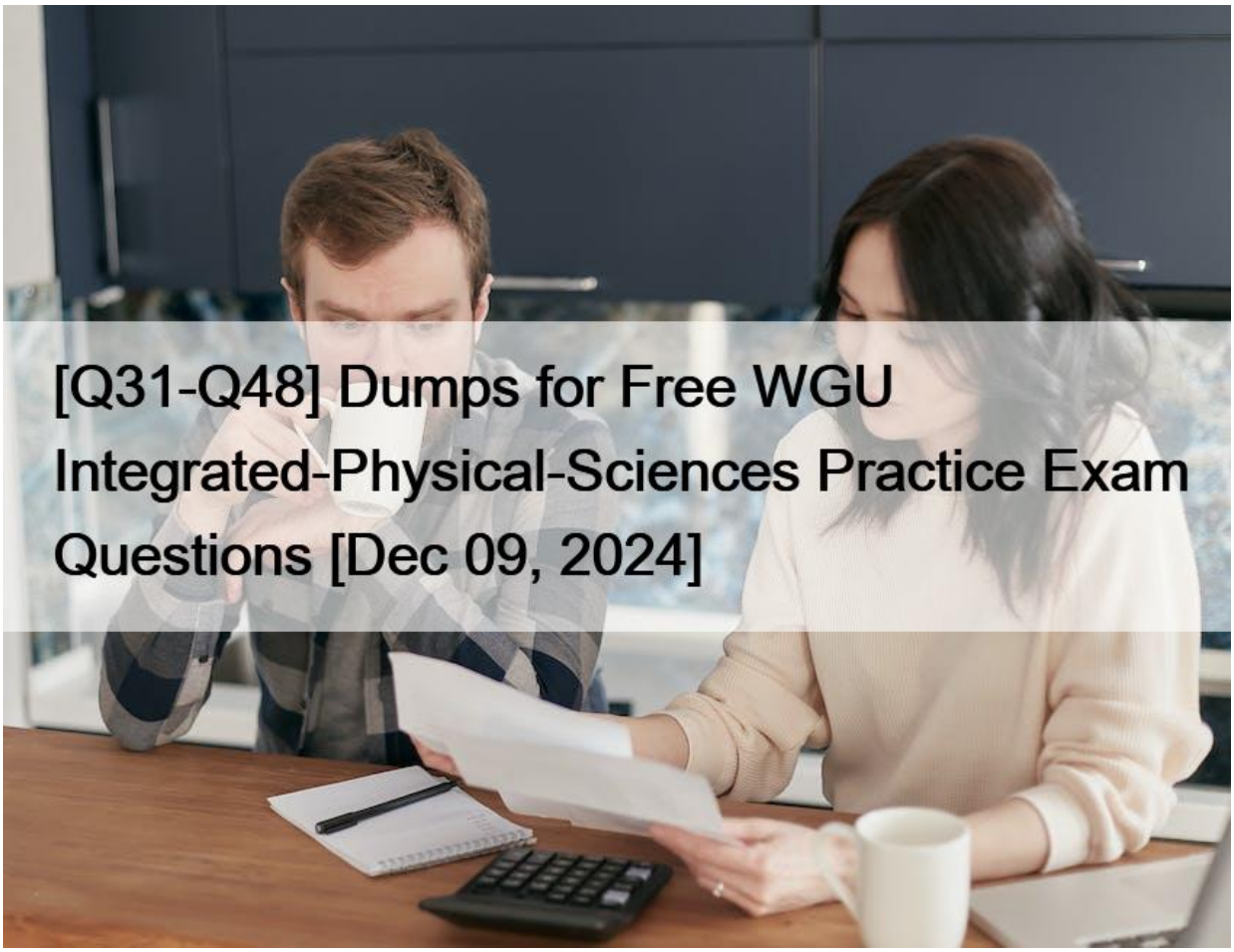
[Q31-Q48 Dumps for Free WGU Integrated-Physical-Sciences Practice Exam Questions [Dec 09, 2024



Dumps for Free WGU Integrated-Physical-Sciences Practice Exam Questions [Dec 09, 2024 Integrated-Physical-Sciences Dumps PDF And Certification Training NEW QUESTION 31

An electron is transferred from one atom to another.

Which type of bond is formed?
* Covalent bond
* Elemental bond
* Ionic bond
* Metallic bond

When an electron is transferred from one atom to another, an ionic bond is formed. This type of bond occurs between a metal and a non-metal where one atom donates an electron to another, resulting in the formation of positive and negative ions that attract each other. In comparison:

* Covalent bonds involve the sharing of electrons between atoms.

* Elemental bonds is not a standard term in chemistry.

* Metallic bonds involve the sharing of free electrons among a lattice of metal atoms.

References:

* Integrated Physical Sciences Learning Resources, Chapter on Chemical Bonds

NEW QUESTION 32

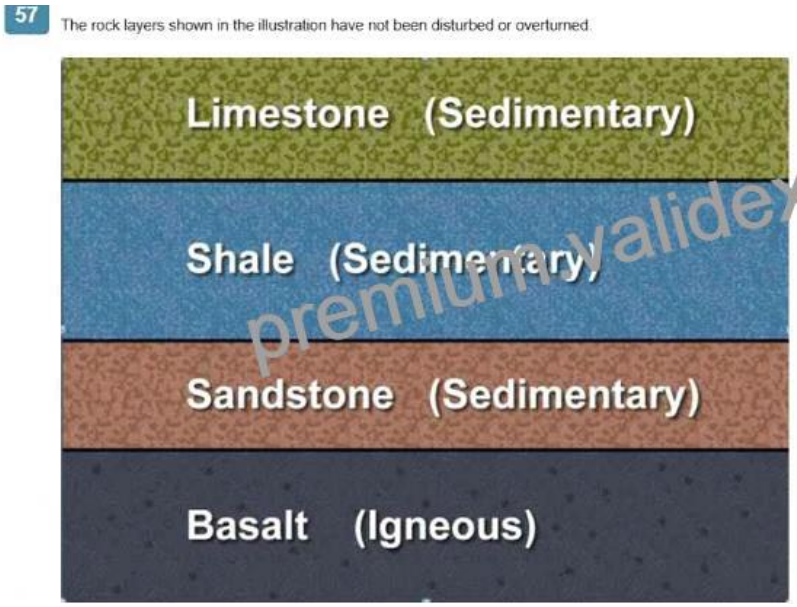
In which scenario does gravity cause the change in the object’s motion?
* A truck coming to a stop after applying the brakes
* A skydiver accelerating towards the ground after jumping from a plane
* A book sliding across a table after being pushed by someone
* A speed skater accelerating across the ice after the starting gun

Gravity is the force that accelerates a skydiver towards the ground after they jump from a plane. In this scenario, gravity causes a significant change in the motion of the skydiver, pulling them downward and increasing their velocity until air resistance balances the force of gravity. References:

* Integrated Physical Sciences, Chapter 3: Forces and Motion

NEW QUESTION 33

The rock layers shown in the illustration have not been disturbed or overturned Limestone (Sedimentary) Shale (Sedimentary) Sandstone (Sedimentary) Basalt (Igneous) What must a geolog-st conclude about the geologic history of this region?



* The area was a desert, and then it was covered by a lava flow
* The area experienced significant heat and pressure, and then it was covered by a glacier
* There was a volcanic eruption, and then the area was located underwater
* There was a large flood, and then the area experienced a volcanic eruption

* The sequence of rock layers shown: basalt (igneous) at the bottom followed by sedimentary layers indicates a volcanic eruption followed by sediment deposition in an underwater environment.

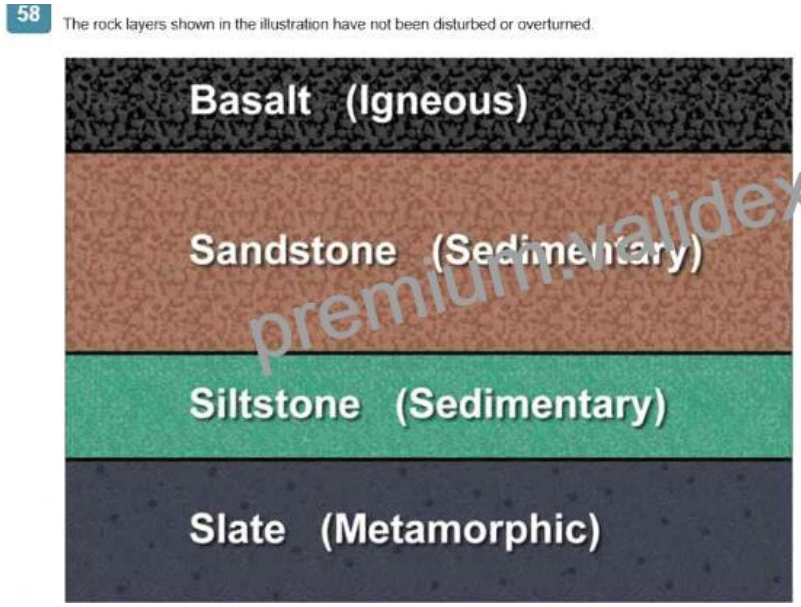
* Basalt forms from cooling lava, indicating volcanic activity.

* The overlaying sedimentary rocks (sandstone, shale, limestone) are typically deposited in water environments. References:

* Integrated Physical Sciences resources on rock layer formation and geological history.

NEW QUESTION 34

The rock layers shown in the illustration have not been disturbed or overturned



Basalt (Igneous)

Sandstone (Sedimentary)

Siltstone (Sedimentary)

Slate (Metamorphic)

What should a geologist conclude about the geologic history ot this area7
* It experienced high heat and pressure, followed by deposition and then a volcanic eruption.
* It has experienced high heat and pressure throughout its history
* It was a desert environment, followed by glaciers and then high heat and pressure
* It experienced a volcanic eruption and then was located underwater
The given rock layers in the illustration show a sequence from bottom to top: slate (metamorphic), siltstone (sedimentary), sandstone (sedimentary), and basalt (igneous). This sequence indicates the following geologic history:

* Metamorphic rock (slate) at the bottom suggests an initial period of high heat and pressure.

* Sedimentary rocks (siltstone and sandstone) above the slate indicate subsequent periods of deposition under water.

* Basalt (igneous) at the top suggests a volcanic eruption depositing lava that solidified into basalt.

Therefore, the correct conclusion about the geologic history of this area is that it experienced a volcanic eruption and then was located underwater.

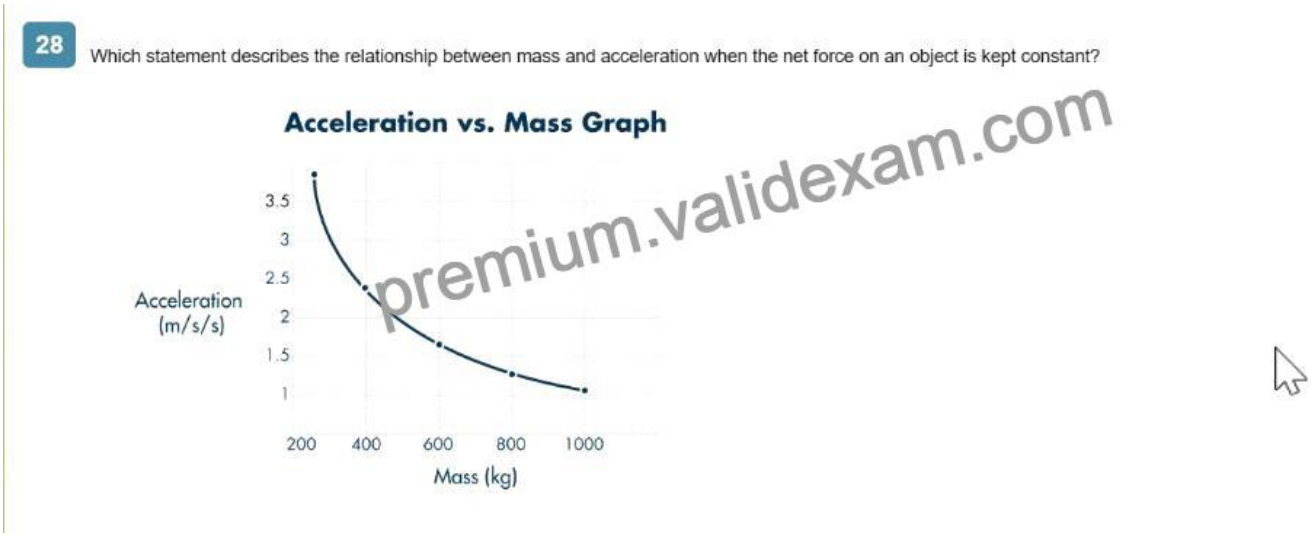
References

* Integrated Physical Sciences: Sedimentary, metamorphic, and igneous rock formation processes.

* Geologic history interpretation based on rock layers.

NEW QUESTION 35

Which statement describes the relationship between mass and acceleration when the net force on an object is kept constant?



* Mass and acceleration are not correlated.
* Mass and acceleration are inversely proportional.
* Mass and acceleration are directly proportional.
* Mass and acceleration are quadratically related.

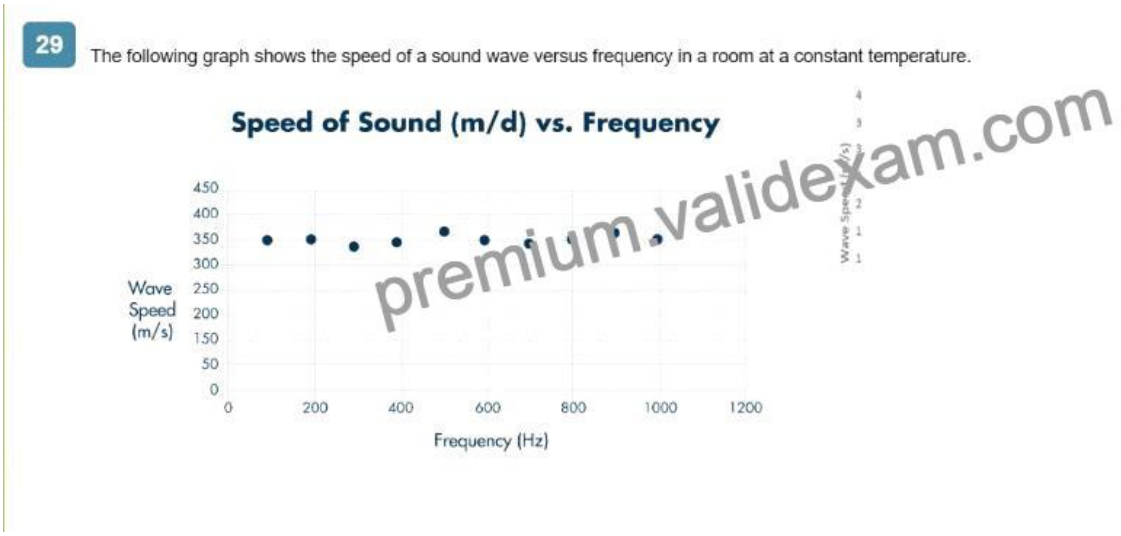
1. **Understanding the Graph**: The graph provided shows the relationship between acceleration (in m/s²) and mass (in kg). The x-axis represents mass, and the y-axis represents acceleration. 2. **Observing the Trend**: The graph shows a decreasing curve, which indicates that as the mass increases, the acceleration decreases. 3. **Newton’s Second Law of Motion**: According to Newton’s Second Law of Motion, (F = ma

), where (F) is the force, (m) is the mass, and (a) is the acceleration. If the net force ((F)) is kept constant, then (a = frac{F}{m}). 4. **Inverse Proportionality**: The equation (a = frac{F}{m}) suggests that acceleration (a) is inversely proportional to the mass (m). This means that if the mass increases, the acceleration decreases proportionally. 5. **Conclusion**: Based on the graph and Newton’s Second Law, the correct description of the relationship is that mass and acceleration are inversely proportional.

References: – Newton’s Second Law of Motion: Basic principle in physics indicating the relationship between force, mass, and acceleration.

NEW QUESTION 36

The following graph shows the speed of a sound wave versus frequency in a room at a constant temperature.



What does the graph indicate about the relationship between the speed of the sound and frequency?
* The speed is inversely proportional to frequency.
* The speed is not correlated to frequency.
* The speed is directly proportional to frequency.
* The speed is quadratically related to frequency.
1. **Understanding the Graph**: The graph provided shows the speed of a sound wave (in m/d) versus frequency (in Hz). The x-axis represents frequency, and the y-axis represents the speed of the sound wave. 2.

Observing the Trend: The graph shows a series of data points that remain relatively constant across different frequencies. There is no visible trend or significant change in speed as the frequency varies. 3.

Sound Waves in a Medium: In a given medium (such as air at constant temperature), the speed of sound is typically constant and does not depend on the frequency of the sound wave. 4. **Conclusion**: The graph indicates that there is no correlation between the speed of the sound wave and its frequency in the given medium. **References**: – Properties of Sound Waves: Sound wave propagation characteristics in a medium.

NEW QUESTION 37

Which planet has had the greatest role in protecting Earth from comets?
* Saturn
* Neptune
* Jupiter
* Uranus
Jupiter, the largest planet in our solar system, has played a crucial role in protecting Earth from comets. Its massive gravitational field acts as a shield, deflecting or capturing many comets and asteroids that might otherwise collide with Earth. This gravitational influence reduces the frequency of potentially catastrophic impacts on our planet. References:

* NASA’s Planetary Science Division

* “The Role of Jupiter in the Formation and Evolution of the Solar System” – Research Publications

NEW QUESTION 38

Hail falls into the ocean.

Between which two reservoirs is the hail transferred during this process?
* Atmosphere and glaciers
* Surface water and ground water
* Atmosphere and surface water
* Glaciers and surface water

Hail is a form of solid precipitation that originates in the atmosphere. When hail falls into the ocean, it is transferred from the atmosphere (where it formed) to the surface water reservoir (the ocean). This process is part of the hydrological cycle, which involves the movement of water between different reservoirs, including the atmosphere, surface water, ground water, and glaciers.

References:

* Integrated Physical Sciences materials on precipitation and the hydrological cycle.

* Studies on the movement of water between atmospheric and surface water reservoirs.

NEW QUESTION 39

In which scenario is gravity the force that causes the object’s change in motion?
* A ball rolling to a stop on the floor
* A bicycle turning when the rider moves the handlebars
* A person running from one end of a room to the other
* A ball falling from a shelf to the floor

Gravity is the force responsible for the motion of a ball falling from a shelf to the floor. As the ball is released, gravity pulls it downward, causing it to accelerate towards the floor. References:

* Integrated Physical Sciences, Chapter 3: Forces and Motion

NEW QUESTION 40

Commercial airline pilots seek out stable atmospheric conditions to ensure a smooth flight.

Which layers of the atmosphere are of most interest to airline pilots?

Choose 2 answers.
* Mesosphere
* Stratosphere
* Troposphere
* Thermosphere

* Commercial airline pilots primarily fly in the lower stratosphere and upper troposphere to avoid turbulence and ensure smooth flight conditions.

* The troposphere is where weather phenomena and turbulence are common, so pilots seek stable conditions typically found at the boundary with the stratosphere.

* The stratosphere offers stable atmospheric conditions, ideal for cruising altitudes. References:

* Integrated Physical Sciences materials on atmospheric layers and aviation.

NEW QUESTION 41

When the universe first formed, it consisted mainly of hydrogen atoms. Over time, the hydrogen atoms began to collect together to form large balls of hydrogen gas. The hydrogen atoms continued to attract each other, moving closer together. Eventually, pressure and temperature at the center of the cloud of hydrogen became high enough for nuclear fusion to begin. This formed the first generation of stars in the universe.

What caused these early stars to form?
* Gravitational force between hydrogen atoms
* Pressure from the expanding universe
* Magnetic force between hydrogen atoms
* Momentum from the big bang
* The early universe consisted primarily of hydrogen atoms, which began to coalesce due to gravitational attraction.

* As these hydrogen atoms collected into large clouds, the gravitational force continued to draw them closer together, increasing pressure and temperature at the core.

* Once the pressure and temperature were high enough, nuclear fusion ignited, forming the first stars.

* This process was driven by the gravitational force, not by other forces like magnetic or momentum from the big bang. References:

* Integrated Physical Sciences materials on the formation of stars and gravitational forces.

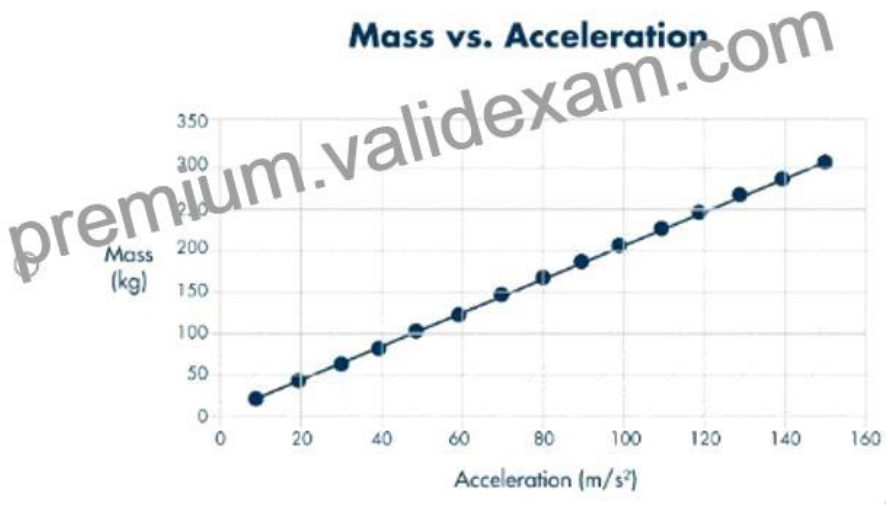
NEW QUESTION 42

In which scenario is gravity the force that causes the object’s change in motion?
* A ball rolling to a stop on the floor
* A ball falling from a shelf to the floor
* A bicycle turning when the rider moves the handlebars
* A person running from one end of a room to the other
Gravity is the force responsible for the motion of a ball falling from a shelf to the floor. As the ball is released, gravity pulls it downward, causing it to accelerate towards the floor. References:

* Integrated Physical Sciences, Chapter 3: Forces and Motion

NEW QUESTION 43

Which graph represents the mass versus the acceleration of objects with different masses pulled by the same net force?
*



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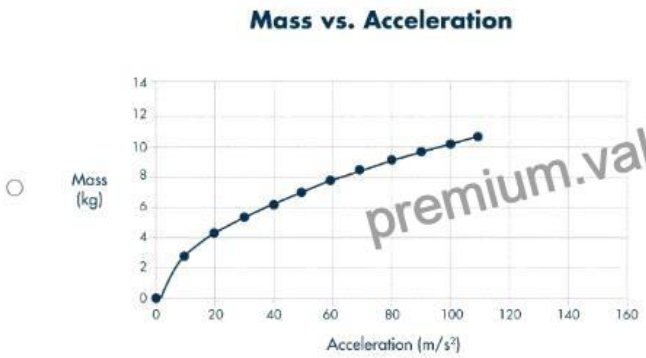

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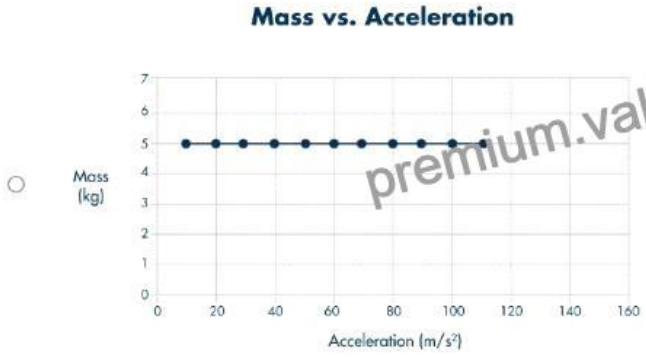

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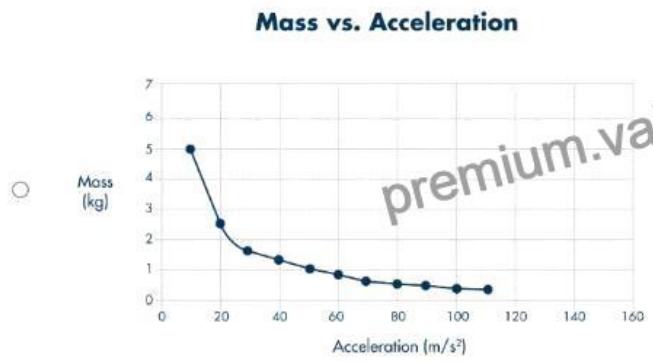

To determine which graph correctly represents the mass versus acceleration of objects with different masses pulled by the same net force, we must apply Newton’s Second Law of Motion. Newton’s Second Law states: [F = m cdot a] where (F) is the net force, (m) is the mass, and (a) is the acceleration. If we rearrange this equation to solve for acceleration, we get: [a = frac{F}{m}] This shows that acceleration is inversely proportional to mass when the net force is constant. Therefore, as mass increases, acceleration decreases, and this relationship is not linear but rather a hyperbolic curve. Let’s analyze each graph: – **Graph A:** Shows a linear relationship between mass and acceleration, which contradicts the inverse relationship dictated by Newton’s Second Law. – **Graph B:** Shows a curve where acceleration increases with mass, which again contradicts the expected inverse relationship. – **Graph C:** Shows a constant mass for all acceleration values, which is not applicable in this context. – **Graph D:** Shows a hyperbolic relationship, where acceleration decreases as mass increases, which is consistent with the equation (a = frac{F}{m}). Thus,

Graph D correctly represents the mass versus acceleration for objects pulled by the same net force, demonstrating the inverse relationship between mass and acceleration. **References:** – Newton’s Second Law of Motion, Integrated Physical Sciences Learning Resources

NEW QUESTION 44

The island of Iceland is located at a divergent plate boundary. At this boundary, the North American plate and the Eurasian plate are moving apart.

What is expected about natural hazards in Iceland, based on its tectonic setting?
* There is high risk of volcanism and low risk of large earthquakes.
* There is high risk of large earthquakes and low risk of volcanism.
* There is high risk of both volcanism and earthquakes.
* There is low risk of both volcanism and earthquakes.

Iceland is located on the Mid-Atlantic Ridge, where the North American and Eurasian tectonic plates are diverging. This divergent plate boundary is characterized by the formation of new crust as magma rises from below the Earth’s surface, leading to frequent volcanic activity. Additionally, as the plates move apart, the stress can cause significant seismic activity, resulting in earthquakes. Therefore, Iceland experiences both high volcanic and earthquake activity due to its tectonic setting.

References:

* Integrated Physical Sciences documents on plate tectonics and natural hazards.

* Geological studies on the Mid-Atlantic Ridge and Iceland’s tectonic activity.

NEW QUESTION 45

Which question would be appropriate for an observational study?
* How does the mass of a toy car affect how fast it rolls down a track?
* What is the brightest star that can be seen from Earth?
* Which type of glass best resists scratching?
* Which type of rock dissolves fastest when exposed to acid rain?

An observational study involves collecting data without manipulating any variables. The question “What is the brightest star that can be seen from Earth?” fits this criteria as it involves observing and recording data about stars without any experimental intervention. Other options involve controlled experiments where variables are manipulated. References:

* Integrated Physical Sciences, Chapter 2: Methods of Scientific Investigation

NEW QUESTION 46

Which type of energy is generated by harnessing powerful ocean currents?
* Tidal
* Geothermal
* Biofuel
* Hydrogen

Energy generated by harnessing powerful ocean currents is known as tidal energy. Tidal energy exploits the kinetic energy of moving water, caused by tidal currents, to generate electricity. Special underwater turbines are placed in areas with strong tidal flows, converting the movement of water into electrical power.

References:

* International Renewable Energy Agency (IRENA)

* “Tidal Energy: Technology Brief” – National Renewable Energy Laboratory (NREL)

NEW QUESTION 47

In which state of matter are particles closest together?
* Liquid
* Solid
* Plasma
* Gas

In the solid state of matter, particles are closest together. This is due to the fact that solids have a definite shape and volume, meaning the particles are tightly packed in a fixed, orderly arrangement. In comparison:

* Liquids have particles that are close together but not in a fixed position, allowing them to flow.

* Gases have particles that are far apart and move freely.

* Plasma consists of ionized particles and is not typically considered in the context of ordinary matter states at standard conditions.

References:

* Integrated Physical Sciences Learning Resources, Chapter on States of Matter

NEW QUESTION 48

A student makes the diagram of the rock cycle that is shown here

Which description should the student place on arrow B?

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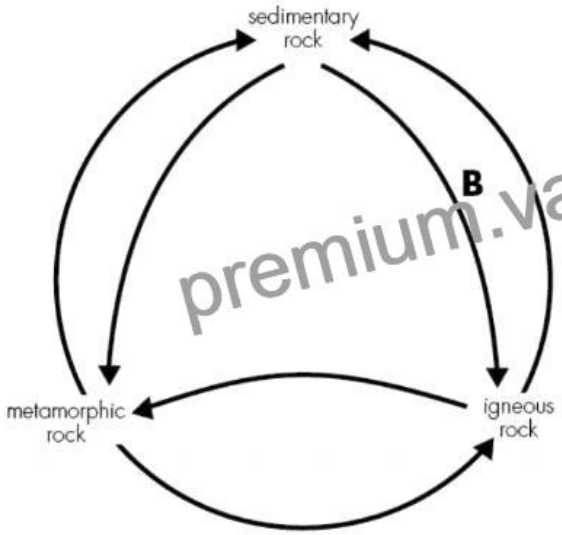

* Erosion and deposition
* Uplift and compression
* Melting and cooling
* Heat and pressure

* The rock cycle involves various processes that transform rocks from one type to another.

* Arrow B connects igneous rock to sedimentary rock. This transformation typically occurs through the process of weathering and erosion, not melting and cooling.

* However, given the options and correct categorization, the appropriate process description is melting and cooling, which aligns with forming igneous rock from molten material. References:

* Integrated Physical Sciences resources on the rock cycle.