

Astronomy chapter 9 practice questions essay



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Which statement about asteroids is not true? If we could put all the asteroids together, they would make an object about the size of Earth. The asteroid belt is located _____. between the orbits of Mars and Jupiter A rock found on Earth that crashed down from space is called _____. a meteorite A typical meteor is created by a particle about the size of a _____. pea What do we mean by a primitive meteorite? a meteorite that is essentially unchanged since it first condensed and accreted in the solar nebula some 4.6 billion years ago Among discovered meteorites, we have found some with all the following origins except _____. being a fragment from Comet Halley Which statement is not thought to be true of all comets in our solar system? Comets always have tails. When a comet passes near the Sun, part of it takes on the appearance of a large, bright ball from which the tail extends. This part is called _____. the coma The total number of comets orbiting the Sun is estimated to be about _____. 1 trillion Which of the following statements is not true? Objects in the Kuiper belt are made mostly of rock and metal. According to current evidence, Pluto is best explained as _____. a large member of the Kuiper belt What is Eris? An icy object that orbits in the Kuiper belt and is more massive than Pluto What is Charon? the largest of Pluto's three known moons What do we mean by a mass extinction? the extinction of a large fraction of the world's plant and animal species in a relatively short period of time If the hypothesis tracing the extinction of the dinosaurs to an impact is correct, the dinosaurs died off largely because _____. of global climate effects initiated by dust and smoke that entered the atmosphere after the impact Objects the size of the one that exploded over Chelyabinsk (Russia), causing significant damage, probably hit Earth at least _____. once a century Which direction do a comet's dust

and plasma tails point? generally away from the Sun Which of the following statements best describes the size of the largest asteroid, Ceres? It is a little less than half the diameter of our Moon. If we could put all the asteroids together, their total mass would be _____. much less than the mass of any terrestrial planet Why didn't a planet form where the asteroid belt is now located? Gravitational tugs from Jupiter prevented material from collecting together to form a planet. Gaps in the asteroid belt (often called Kirkwood gaps) are caused by _____. orbital resonances with Jupiter When you see the bright flash of a meteor, what are you actually seeing? the glow from a pea-size particle and the surrounding air as the particle burns up in our atmosphere In science fiction movies, spaceships are often shown dodging through large numbers of closely spaced, boulder-size objects. Which of the following real things in our solar system would look most like such science fiction dangers? the rings of Saturn Suppose you find a meteorite made almost entirely of metal. According to current science, which of the following statements must be true? Your meteorite is a fragment from the core of a large asteroid that shattered in a collision. Which of the following objects are probably not located in the same general region of the solar system in which they originally formed? Oort cloud comets Suppose there were no solar wind. How would the appearance of a comet in our inner solar system be different? It would have only one tail instead of two. Suppose we discover a new comet on an orbit that brings it closer to the Sun than Mercury every 125 years. What can we conclude? It has been on its current orbit for only a very short time compared to the age of our solar system. When we see a meteor shower, it means that _____. Earth is crossing the orbit of a comet Why won't Pluto collide with Neptune? Pluto orbits the Sun exactly two times for

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every three Neptune orbits, which ensures they never come close together.

What is Pluto's moon Charon thought to have in common with our own Moon? It probably formed as a result of a giant impact. Which of the following is not a piece of evidence supporting the idea that Pluto is a large comet of the Kuiper belt? Pluto grows a coma and a long tail when it is at the point in its orbit closest to the Sun. Which of the following is not a piece of evidence supporting the idea that an impact caused the mass extinction that occurred 65 million years ago? Fossilized dinosaur bones contain fragments of rock from the impact. Which of the following best describes why scientists seek to identify even very small asteroids that could potentially hit Earth? To try to prevent an impact that might destroy a town or city. Suppose that large jovian planets had never formed in our solar system. Which of the following would most likely be true? Neither the asteroid belt nor Oort cloud would exist.