



FOCUS: Answering multiple-choice reference questions about longer passages.

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DIRECTIONS: Read the passage and the reference questions that follow. Mark the choice that best answers each question.

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Albert Einstein



DIRECTIONS: Read the passage and the reference questions that follow. Mark the choice that best answers each question.

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Albert Einstein was born in Ulm, Germany, in 1879. He graduated from a university in Switzerland. Unable to get an academic position, he went to work in the Patent Office as an examiner. He later stated that this job with its set working hours left him all the rest of his time to do physics unconstrained. In 1905, Einstein published papers on five major ideas of physics--a record never matched in the history of that subject.

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In his first paper, he explained the mechanisms by which light falling on a metal surface causes electrons to be given off. This work turned out to be basic to our current ideas of atoms and how they interact with light. (Later, it was the official reason for his being awarded the Nobel Prize in Physics.) It showed that particles of light exist, the particles we now call photons. Next, for his doctoral thesis, he found a way to estimate the dimensions of molecules by statistically studying their motion in liquids. In his third, somewhat related paper, he explained jiggling motions, known as "Brownian motion," of tiny particles that a careful observer can see moving around inside liquids. Einstein said that the particles are hit by atoms over and over again, which displaces them from their original positions by distances proportional to the square root of time. In his fourth paper, he advanced his special theory of relativity, which described motion and gave a central role to the speed of light. He showed that time, space, and motion are all relative to the observer; absolute measurements of these quantities cannot be made. This work culminated in a fifth paper, in which Einstein presented $E = mc^2$, probably the most famous equation in all of physics.

Einstein's work made him well known in scientific circles, and he was offered university professorships. By 1916 he had revised his earlier theory predicting the angle by which light passing near the sun would be bent. When the British scientist Arthur Eddington verified the prediction at the 1919 eclipse, Einstein triumphed. He accepted an offer to come to America where he would become the first professor at the Institute for Advanced Study, which was being set up in Princeton, New Jersey, not far from Princeton University. During his years there, Einstein continued to work on scientific problems. Einstein died in 1955. For his achievements and their influence on modern science and technology, Einstein was named "Person of the Century" in the December 31, 1999, issue of *Time* magazine.



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1 The word **its** refers to

- ☐ a job
- ☐ a university
- ☐ time
- ☐ work

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2 The phrase **that subject** refers to

- ☐ history
- ☐ physics
- ☐ major ideas
- ☐ research papers

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3 The word **they** refers to

- ☐ ideas
- ☐ atoms
- ☐ electrons
- ☐ mechanisms

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4 The word **them** refers to

- ☐ motions
- ☐ liquids
- ☐ particles
- ☐ positions

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5 The phrase **these quantities** refers to

- ☐ proportional distances
- ☐ motion and the speed of light
- ☐ time, space, and motion
- ☐ absolute measurements

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6 The word **where** refers to

- ☐ a university
- ☐ a country
- ☐ a city
- ☐ a state

...distances proportional to the square root of time. In his fourth paper, he advanced his special theory of relativity, which described motion and gave a central role to the speed of light. He showed that time, space, and motion are all relative to the observer; absolute measurements of these quantities cannot be made. This work culminated in a fifth paper, in which Einstein presented $e = mc^2$, probably the most famous equation in all of physics.

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7 The word **there** refers to

- ☐ America
- ☐ Time Magazine
- ☐ Princeton University
- ☐ Institute for Advanced Study

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8 The word **their** refers to

- ☐ Einstein's achievements
- ☐ Einstein and the university
- ☐ honors and awards
- ☐ scientific problems

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