



Standardized Test Preparation

KEY

READING

Read each of the passages below. Then, answer the questions that follow each passage.

Passage 1 The Deep Sea Drilling Project was a program to retrieve and research rocks below the ocean to test the hypothesis of sea-floor spreading. For 15 years, scientists studying sea-floor spreading conducted research aboard the ship *Glomar Challenger*. Holes were drilled in the sea floor from the ship. Long, cylindrical lengths of rock, called *cores*, were obtained from the drill holes. By examining fossils in the cores, scientists discovered that rock closest to mid-ocean ridges was the youngest. The farther from the ridge the holes were drilled, the older the rock in the cores was. This evidence supported the idea that sea-floor spreading creates new lithosphere at mid-ocean ridges.

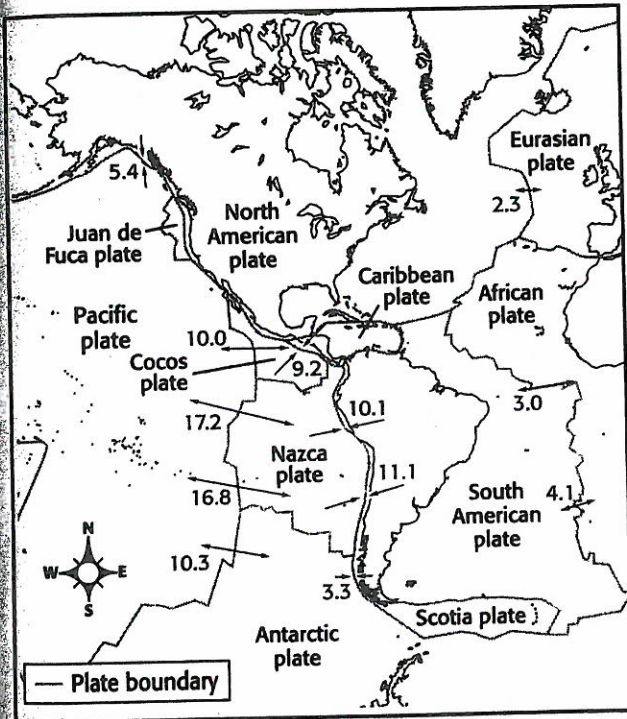
1. In the passage, what does *conducted* mean?
 A directed
 B led
 C carried on
 D guided
2. Why were cores drilled in the sea floor from the *Glomar Challenger*?
 F to determine the depth of the crust
 G to find minerals in the sea-floor rock
 H to examine fossils in the sea-floor rock
 I to find oil and gas in the sea-floor rock
3. Which of the following statements is a fact according to the passage?
 A Rock closest to mid-ocean ridges is older than rock at a distance from mid-ocean ridges.
 B One purpose of scientific research on the *Glomar Challenger* was to gather evidence for sea-floor spreading.
 C Fossils examined by scientists came directly from the sea floor.
 D Evidence gathered by scientists did not support sea-floor spreading.

Passage 2 The Himalayas are a range of mountains that is 2,400 km long and that arcs across Pakistan, India, Tibet, Nepal, Sikkim, and Bhutan. The Himalayas are the highest mountains on Earth. Nine mountains, including Mount Everest, the highest mountain on Earth, are more than 8,000 m tall. The formation of the Himalaya Mountains began about 80 million years ago. A tectonic plate carrying the Indian subcontinent collided with the Eurasian plate. The Indian plate was driven beneath the Eurasian plate. This collision caused the uplift of the Eurasian plate and the formation of the Himalayas. This process is continuing today.

1. In the passage, what does the word *arcs* mean?
 A forms a circle
 B forms a plane
 C forms a curve
 D forms a straight line
2. According to the passage, which geologic process formed the Himalaya Mountains?
 F divergence
 G subsidence
 H strike-slip faulting
 I convergence
3. Which of the following statements is a fact according to the passage?
 A The nine tallest mountains on Earth are located in the Himalaya Mountains.
 B The Himalaya Mountains are located within six countries.
 C The Himalaya Mountains are the longest mountain range on Earth.
 D The Himalaya Mountains formed more than 80 million years ago.

INTERPRETING GRAPHICS

The illustration below shows the relative velocities (in centimeters per year) and directions in which tectonic plates are separating and colliding. Arrows that point away from one another indicate plate separation. Arrows that point toward one another indicate plate collision. Use the illustration below to answer the questions that follow.



- Between which two tectonic plates does spreading appear to be the fastest?
 - A the Australian plate and the Pacific plate
 - B the Antarctic plate and the Pacific plate
 - C the Nazca plate and the Pacific plate**
 - D the Cocos plate and the Pacific plate
- Where do you think mountain building is taking place?
 - F between the African plate and the South American plate
 - G between the Nazca plate and the South American plate**
 - H between the North American plate and the Eurasian plate
 - I between the African plate and the North American plate

MATH

Read each question below, and choose the best answer.

- ~~The mesosphere is 2,550 km thick, and the asthenosphere is 250 km thick. If you assume that the lithosphere is 150 km thick and that the crust is 50 km thick, how thick is the mantle?~~
 - A 2,950 km
 - B 2,900 km
 - C 2,800 km
 - D 2,550 km

- If a seismic wave travels through the mantle at an average velocity of 8 km/s, how many seconds will the wave take to travel through the mantle, which is 2,800 km thick?

- F 318.75 s
- G 350.0 s**
- H 362.5 s
- I 368.75 s

$$\frac{8 \text{ km}}{1 \text{ sec}} = \frac{2800 \text{ km}}{x \text{ sec}}$$

- If the crust in a certain area is subsiding at the rate of 2 cm per year and has an elevation of 1,000 m, what elevation will the crust have in 10,000 years?

- A 500 m
- B 800 m**
- C 1,200 m
- D 2,000 m

$$\textcircled{1} \frac{-2 \text{ cm}}{1 \text{ yr}} = \frac{x}{10,000 \text{ yrs}} \quad \textcircled{3} \frac{1,000}{800}$$

$$\textcircled{2} -20,000 \text{ cm} = -200 \text{ m}$$

- Assume that a very small oceanic plate is located between a mid-ocean ridge and a subduction zone. At the ridge, the plate is growing at a rate of 5 km every 1 million years. At the subduction zone, the plate is being destroyed at a rate of 10 km every 1 million years. If the oceanic plate is 100 km across, how long will it take the plate to disappear?

- F 100 million years
- G 50 million years
- H 20 million years**
- I 5 million years

destroyed 5 km every 1 mil. yrs

$$\frac{-5 \text{ km}}{1 \text{ mil}} = \frac{100 \text{ km}}{x}$$