

Essentials of Oceanography, 11e (Trujillo)

Chapter 3 Marine Provinces

Match the term with the appropriate phrase. You may use each answer once, more than once or not at all.

- A) used to map ocean floor from space
- B) cumulative plot of area versus depth or elevation
- C) measurement of ocean depth and seafloor topography
- D) a method of mapping the topography of the ocean floor along a strip up to 60 km
- E) used echo soundings in 1952 to identify mid-ocean ridge in South Atlantic
- F) used to determine ocean structure beneath the sea floor
- G) uses high frequency sound waves to measure ocean depth

1) bathymetry

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

2) multi-beam sonar

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

3) hypsographic curve

Diff: 1

Skill: Knowledge

Section: 3.2 What Does Earth's Hypsographic Curve Reveal?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

4) precision-depth recorder (PDR)

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

5) seismic reflection profile

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

Answers: 1) C 2) D 3) B 4) G 5) F

Match the term with the appropriate phrase. You may use each answer once, more than once or not at all.

- A) flat depositional surfaces that cover extensive portions of the deep-ocean basins
- B) deep linear scars on the deep-ocean floor caused by plate convergence
- C) narrow and deep valleys on continental slopes
- D) continental margins not in close proximity to any plate boundary
- E) continental margin associated with lithospheric plate boundaries
- F) a generally flat zone extending from the shore to the shelf break
- G) shallow-water areas close to continents

6) ocean trench

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

7) submarine canyon

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

8) continental shelf

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

9) continental margin

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

10) abyssal plain

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

Answers: 6) B 7) C 8) F 9) G 10) A

11) Echo sounding is not a very reliable way to measure ocean depth because water is a poor transmitter of sound.

Answer: FALSE

Diff: 2

Skill: Comprehension

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

12) Satellites measurements of the ocean surface can be used to make maps of the seafloor.

Answer: TRUE

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

13) The shape of Earth's hypsographic curve can be used to support the existence of plate tectonics.

Answer: TRUE

Diff: 1

Skill: Knowledge

Section: 3.2 What Does Earth's Hypsographic Curve Reveal?

14) The three major provinces of the ocean floor are continental margins, deep-ocean basins, and submarine canyons.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

15) Oceans with passive plate margins have continental slopes with more gradual slopes than oceans with active plate margins.

Answer: TRUE

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

16) The continental shelf is generally defined as a steeply sloping zone extending from the shoreline to the shelf break.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

17) A sediment-laden current that flows off the continental shelf is called a turbidity current.

Answer: TRUE

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

18) Sediments of the continental rise can exhibit characteristics similar to those formed by rivers on land.

Answer: TRUE

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

19) Direct and indirect observations indicate that rivers are responsible for the formation of submarine canyons.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

20) The deepest portions of the ocean are part of the relatively narrow features called submarine canyons.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

21) Abyssal plains are more extensive on the seafloor of the Atlantic Ocean basin as compared to those on the seafloor of the Pacific Ocean basin.

Answer: TRUE

Diff: 2

Skill: Comprehension

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

22) Seamounts form from ancient tablemounts.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

23) The Pacific Ring of Fire is the seismically active area along the margins of the Pacific Ocean where earthquakes and volcanoes are common.

Answer: TRUE

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

24) Ocean trenches are deep linear scars in the ocean floor caused by the divergence of plates along divergent plate boundaries.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

25) Mid-ocean ridges are rises that occupy a small portion (around 10%) of the deep ocean basins.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

26) Oceanic ridges are cut by a number of transform faults, which offset spreading zones.

Answer: TRUE

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

27) Hydrothermal vents are often associated with central rift valleys along the oceanic ridge and rise system.

Answer: TRUE

Diff: 3

Skill: Application

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

28) Due to the very harsh environmental conditions, very few types of organisms are found in association with hydrothermal vents.

Answer: FALSE

Diff: 2

Skill: Comprehension

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

29) Hydrothermal vents are seafloor cold seeps with high concentrations of sulfur and salts.

Answer: FALSE

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

30) Black smokers are hydrothermal vents that discharge superheated water with high concentrations of metal sulfides.

Answer: TRUE

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

31) The instrument that emits a high-frequency sound beam to measure the depth of the ocean developed in the 1950s is the:

A) GLORIA.

B) precision-depth recorder (PDR).

C) Seabeam.

D) SeaMARC.

E) SeaWif.

Answer: B

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

32) The method that used most frequently to investigate sediment and rock layers of the sea floor is:

A) direct observation.

B) drilling.

C) light waves.

D) satellite observation.

E) sound waves (specifically seismic reflecting profiling).

Answer: E

Diff: 1

Skill: Knowledge

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

33) Satellites are used to map the ocean floor because:

- A) they are unaffected by surface weather.
- B) they can cover areas where ships have not produced surveys.
- C) they can "see" large areas of the seafloor at one time.
- D) the shape of the ocean surface itself reflects large features on the seafloor below.
- E) All of the above statements are correct.

Answer: E

Diff: 2

Skill: Comprehension

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

34) The two relatively flat areas on the hypsographic curve represent:

- A) continental mountains and abyssal plains.
- B) continental mountains and mid-ocean ridges.
- C) continental slopes and deep-sea trenches.
- D) some interior continental areas/coastal plains and abyssal plains on the ocean floor.
- E) some interior continental areas/coastal plains and mid-ocean ridges.

Answer: D

Diff: 2

Skill: Comprehension

Section: 3.2 What Does Earth's Hypsographic Curve Reveal?

35) The correct order of seafloor features from the coast to the mid-ocean ridge is:

- A) abyssal plain, rise, slope, shelf.
- B) abyssal plain, shelf, slope, rise.
- C) rise, abyssal plain, slope, shelf.
- D) shelf, slope, rise, abyssal plain.
- E) slope, rise, shelf, abyssal plain.

Answer: D

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

36) Passive continental margins are characterized by all of the following *except*:

- A) broad continental shelves.
- B) deep-sea trenches.
- C) shallow coastal waters.
- D) thick sediment accumulation.
- E) very little volcanic and earthquake activity.

Answer: B

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

37) Characteristics of active continental margins include all of the following *except*:

- A) broad continental shelves.
- B) chains of islands.
- C) deep-sea trenches.
- D) thin sediment accumulation.
- E) volcanic and earthquake activity.

Answer: A

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

38) All of the following are considered part of the continental margin *except* the:

- A) continental rise.
- B) continental shelf.
- C) continental slope.
- D) fracture zone.
- E) submarine canyon.

Answer: D

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

39) Directly seaward of the continental shelf is a more steeply sloping region called the:

- A) abyssal plain.
- B) continental rise.
- C) continental slope.
- D) mid-ocean ridge.
- E) trench.

Answer: C

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

40) Underwater avalanches of muddy water mixed with rocks and debris are:

- A) deep sea fans.
- B) graded bedding.
- C) turbidity currents.
- D) turbidite deposits.
- E) white smokers.

Answer: C

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

41) Submarine canyons were most likely formed by:

- A) deposition of terrestrial sediment.
- B) earthquake activity.
- C) erosion by major rivers in the past.
- D) erosion by turbidity currents.
- E) scouring by glaciers during the last ice age.

Answer: D

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

42) Extending from the base of the continental rises into the deep-ocean basins are flat depositional surfaces called:

- A) continental shelves.
- B) continental slopes.
- C) abyssal hills.
- D) tablemounts.
- E) abyssal plains.

Answer: E

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

43) Relatively few abyssal plains are located in the Pacific Ocean due to:

- A) its smaller size compared to other ocean basins.
- B) the presence of convergent active margins.
- C) the absence of convergent active margins.
- D) the presence of seamounts.
- E) all of the above.

Answer: B

Diff: 2

Skill: Comprehension

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

44) Volcanic peaks on the deep-ocean floor with conical tops are called:

- A) seamounts.
- B) tablemounts.
- C) submarine canyons.
- D) oceanic trenches.
- E) oceanic ridges.

Answer: A

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

45) Volcanic features on the ocean floor that are less than 1,000 meters (0.6 miles) tall are called:

- A) seamounts.
- B) tablemounts.
- C) abyssal hills or seamounts.
- D) oceanic trenches.
- E) oceanic ridges.

Answer: C

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

46) Along the margins of the Pacific are found most of Earth's:

- A) seamounts.
- B) tablemounts.
- C) abyssal hills or seamounts.
- D) oceanic trenches.
- E) oceanic ridges.

Answer: D

Diff: 1

Skill: Knowledge

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

47) Older lithosphere is destroyed in association with:

- A) deep-sea trenches.
- B) fracture zones.
- C) hydrothermal vents.
- D) mid-ocean ridges.
- E) spreading centers.

Answer: A

Diff: 2

Skill: Comprehension

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

48) Oceanic ridges and rises result from seafloor spreading along:

- A) convergent plate boundaries.
- B) divergent plate boundaries.
- C) transform plate boundaries.
- D) none of the above.

Answer: B

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

49) New lithosphere is produced in association with:

- A) deep-sea trenches.
- B) fracture zones.
- C) hydrothermal vents.
- D) oceanic ridges.
- E) transform faults.

Answer: D

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

50) Segments of the oceanic ridge system that are gentler and less rugged in slope due to faster rates of seafloor spreading are called:

- A) deep-sea trenches.
- B) fracture zones.
- C) oceanic rises.
- D) convergent plate boundaries.
- E) transform faults.

Answer: C

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

51) Warm-water (From 30°C to 350°C) hydrothermal vents form:

- A) abyssal hills.
- B) black smokers.
- C) cold seeps.
- D) turbidity currents.
- E) white smokers.

Answer: E

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

52) The direction of motion along a seafloor transform fault is:

- A) associated with turbidity currents.
- B) in the same direction as the plates are spreading.
- C) in the same direction as the ridge offset.
- D) influenced by underwater boundary currents.
- E) perpendicular to the direction of plate movement.

Answer: B

Diff: 2

Skill: Comprehension

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

53) With respect to mid-ocean ridges, transform faults are:

- A) associated with hydrothermal vents.
- B) located in submarine canyons.
- C) parallel to the rift valley.
- D) perpendicular to the ridge axis.

Answer: D

Diff: 2

Skill: Comprehension

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

54) Transform faults have all of the following characteristics *except*:

- A) they occur along transform plate boundaries.
- B) movement occurs in the same direction.
- C) they have many earthquakes.
- D) they occur between offset oceanic ridge segments.

Answer: B

Diff: 2

Skill: Comprehension

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

Examine the five words and/or phrases and determine the relationship among the majority of words/phrases. Choose the one option that does not fit the pattern.

55)

- A. global positioning system (GPS)
- B. GLORIA
- C. precision depth recorder (PDR)
- D. SeaBeam
- E. Sea MARC

Answer: A

Diff: 4

Skill: Analysis

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry

56)

- A. continental margin
- B. active margin
- C. convergent active margin
- D. transform active margin
- E. rift valley

Answer: E

Diff: 4

Skill: Analysis

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

57)

- A. continental shelf
- B. abyssal hill
- C. shelf break
- D. continental rise
- E. continental slope

Answer: B

Diff: 4

Skill: Analysis

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

58)

- A. turbidity currents
- B. graded bedding
- C. turbidite deposits
- D. abyssal plains
- E. deep-sea fans

Answer: D

Diff: 4

Skill: Analysis

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

59)

- A. abyssal plain
- B. continental flood basalt
- C. continental rise
- D. continental shelf
- E. continental slope

Answer: B

Diff: 4

Skill: Analysis

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

60)

- A. abyssal hill
- B. abyssal plain
- C. submarine canyon
- D. seamount
- E. tablemount

Answer: C

Diff: 4

Skill: Analysis

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

61)

- A. passive margin
- B. ocean trench
- C. volcanic arc
- D. island arc
- E. continental arc

Answer: A

Diff: 4

Skill: Analysis

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

62)

- A. rift valley
- B. oceanic ridge
- C. oceanic rise
- D. seaknoll
- E. seafloor spreading

Answer: D

Diff: 4

Skill: Analysis

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

63)

- A. metal sulfide deposits
- B. pillow basalts
- C. rift valley
- D. seamounts
- E. trenches

Answer: E

Diff: 4

Skill: Analysis

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

64)

- A. black smoker
- B. deep focus earthquake
- C. hydrothermal vent
- D. rift valley
- E. white smoker

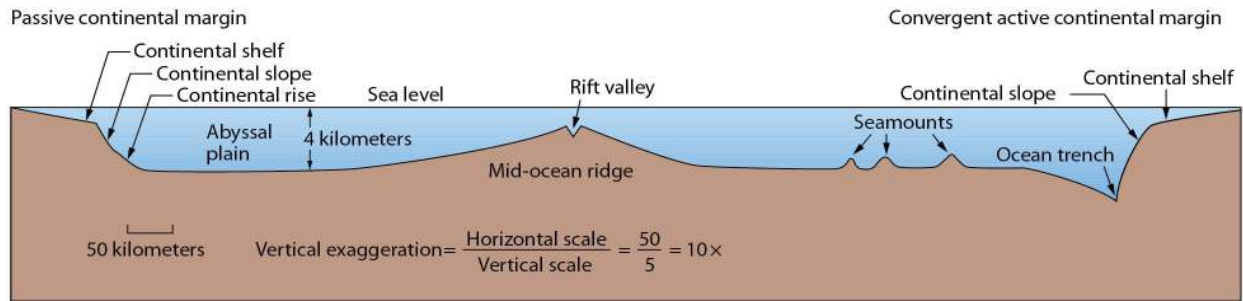
Answer: B

Diff: 4

Skill: Analysis

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge



65) Describe the differences between passive and active continental margins and how these features relate to plate tectonics.

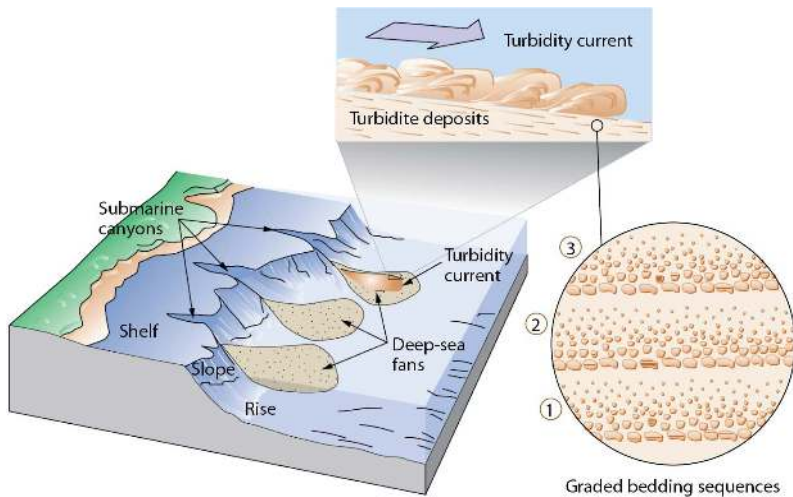
Answer: Continental margins are shallow-water areas close to the continents and can either be classified as active or passive, depending on their proximity to plate boundaries. Passive margins are embedded within the interior of lithospheric plates and are therefore not in close proximity to any plate boundary. Passive margins usually have broad continental shelves, slopes, and rises. In contrast, active margins are associated with lithospheric plate boundaries and thus have a high degree of tectonic activity. Active margins can be either classified as convergent or transform depending upon how the plates are moving relative to each other.

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins



(a) Turbidity currents move downslope, eroding the continental margin to enlarge submarine canyons. Deep-sea fans are composed of turbidite deposits, which consist of sequences of graded bedding (inset).



(b) A diver descends into La Jolia Submarine Canyon, offshore California.



(c) Outcrop of layered turbidite deposits that have been tilted and uplifted onto land in California. Each light-colored layer is sandstone that marks the coarser bottom of a graded bedding sequence.

66) Briefly describe how submarine canyons are created?

Answer: Submarine canyons are narrow but deep v-shaped valleys resembling canyons on land that occur on the edges of continental shelves and rises. Although it was initially thought that submarine canyons were created by river erosion when sea level was lower, the majority of canyons are deeper (3,500 meters) and were never exposed. Instead, both direct and indirect observations suggest that turbidity currents are responsible for carving submarine canyons, in which sediments on the continental shelf accumulate and flow rapidly, especially after a seismic event, down the continental rise.

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

67) Describe the relationship between **turbidity currents** and **turbidite deposits**.

Answer: Turbidity currents are underwater currents composed of mud, rock, and debris flowing along the continental shelf and down the continental slope. The source of the rock, mud, and debris is continental. Turbidite deposits are formed by turbidity currents when the mud, rock, and debris are deposited on the ocean floor in layers known as graded bedding.

Diff: 2

Skill: Comprehension

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins

68) Briefly describe the differences between abyssal hills (seaknolls), seamounts, and tablemounts.

Answer: Abyssal hills, seamounts, and tablemounts are all volcanic features that occur on abyssal plains on the deep-ocean floor. Abyssal hills, also known as seaknolls, are less than 1,000 meters (0.6 miles) tall and are one of the most abundant features on the planet. Seamounts and tablemounts are volcanic peaks that rise more than 1,000 meters above the ocean floor. Seamounts have conical or pointy tops because they never reached the ocean surface. In contrast, tablemounts are flat-topped because at one time they projected above sea level and were eroded due to wind and waves.



Diff: 2

Skill: Comprehension

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

TABLE 3.1 COMPARISON BETWEEN TRANSFORM FAULTS AND FRACTURE ZONES

	Transform faults	Fracture zones
Plate boundary?	Yes—a transform plate boundary	No—an intraplate feature
Relative movement across feature	Movement in opposite directions	Movement in the same direction
		
Earthquakes?	Many	Few
Relationship to mid-ocean ridge	Occur <i>between</i> offset mid-ocean ridge segments	Occur <i>beyond</i> offset mid-ocean ridge segments
Geographic examples	San Andreas Fault, Alpine Fault, Dead Sea Fault	Mendocino Fracture Zone, Molokai Fracture Zone

69) Distinguish between a **transform fault** and a **fracture zone**.

Answer: Transform faults are associated with mid-ocean ridges, form perpendicular to the plate margin, and are formed because of stresses applied to plate margin. The plates on either side of the transform faults are moving in opposite directions and earthquakes are common. In contrast, fracture zones occur within a single plate with crust on either side of the fracture moving in the same direction. Unlike transform faults, fracture zones typically do not have significant earthquake activity.

Diff: 2

Skill: Comprehension

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

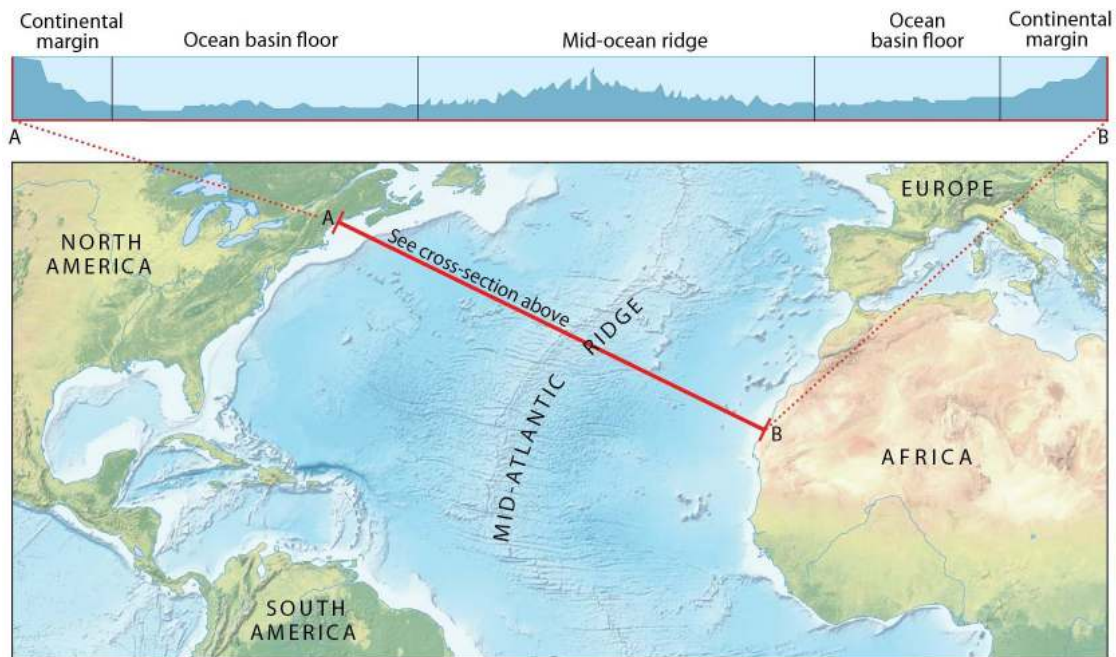
70) Discuss the development of scientific instruments in the 20th century used to map the seafloor. Include in your answer the timeframe when each instrument was developed and a brief description of how it works.

Diff: 2

Skill: Comprehension

Section: 3.1 What Techniques Are Used to Determine Ocean Bathymetry?

Essent'l Concept: 3.1 Discuss the techniques that are used to determine ocean bathymetry



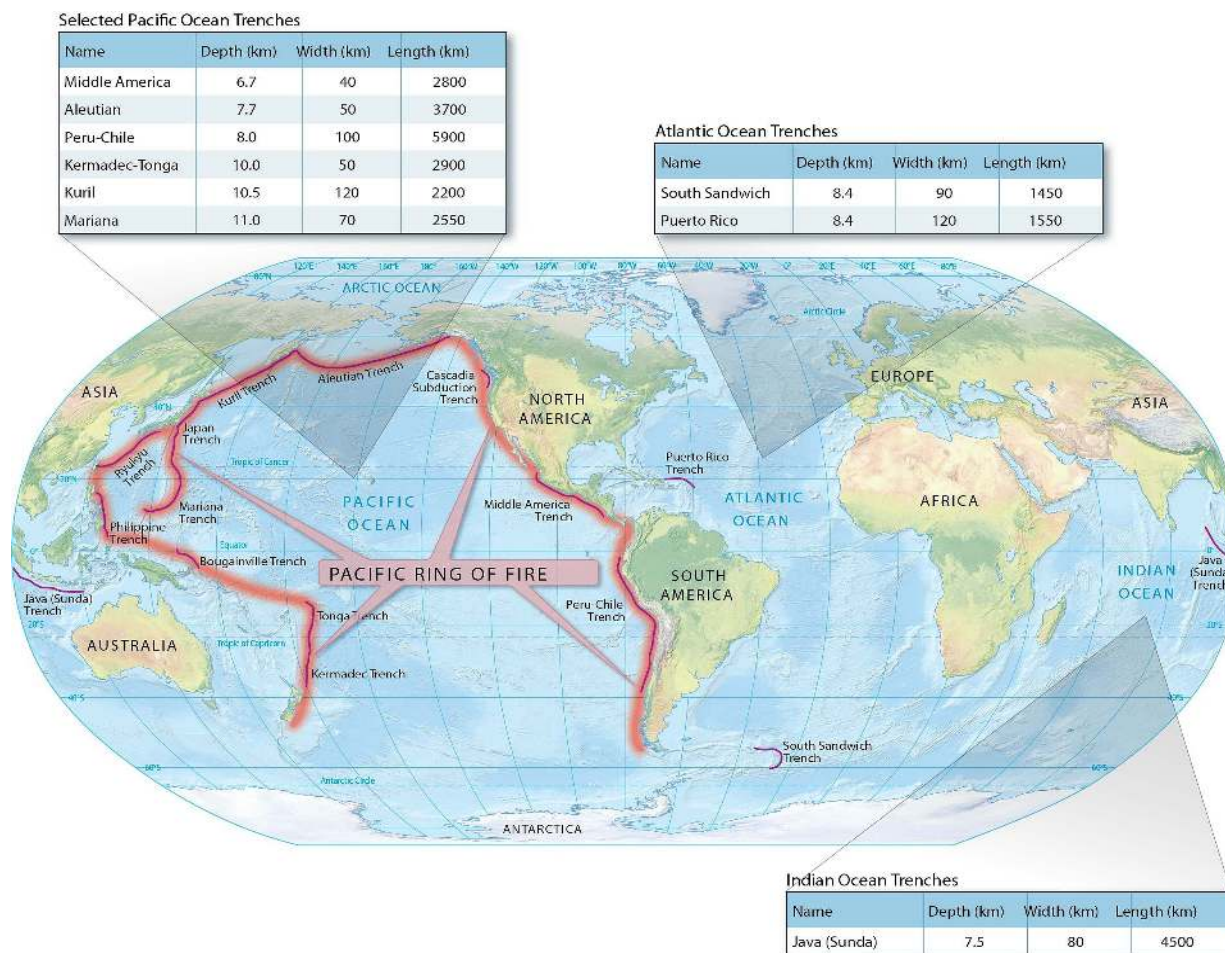
71) Describe the major features of a passive continental margin as you move from the continent toward the center of the ocean basin.

Diff: 1

Skill: Knowledge

Section: 3.3 What Features Exist on Continental Margins?

Essent'l Concept: 3.2 Describe the sea floor features that exist on continental margins



72) In which ocean basin are most ocean trenches found? Use plate tectonic processes to explain why.

Diff: 2

Skill: Comprehension

Section: 3.4 What Features Exist in the Deep-Ocean Basins?

Essent'l Concept: 3.3 Describe the sea floor features that exist in the deep-ocean basins

73) Describe the characteristics and features of the oceanic ridge system, including the difference between oceanic ridges and oceanic rises.

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge

74) List and describe the different types of hydrothermal vents.

Diff: 1

Skill: Knowledge

Section: 3.5 What Features Exist Along the Mid-Ocean Ridge?

Essent'l Concept: 3.4 Describe the sea floor features that exist along the mid-ocean ridge