

ESN Chapter 8 Multi-format Test

Modified True/False

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

- _____ 1. Latitude lines are imaginary horizontal lines on a map that are north and south of the equator.

- _____ 2. On a map, the scale means the height of an object measured from a reference level.

- _____ 3. The prime meridian is an imaginary line around the middle of Earth between the north and south poles.

- _____ 4. Elevation lines are curved lines on a topographic map that show points of equal elevation.

- _____ 5. A bathymetric map shows the depth of a body of water, such as an ocean or a lake.

Completion

Complete each statement.

Select the correct term to complete each sentence. There are extra terms in the list.

contour lines	elevation	prime meridian
equator	map	globe
sea level	bathymetric map	international dateline

6. The _____ runs through Greenwich, England and is the 0° longitude line.
7. A _____ is a map of Earth that models its shape.
8. You are halfway around the world from the prime meridian at the _____.
9. The height of an object measured from a reference level is the _____.
10. _____ are used on a topographic map to indicate all points where the elevation is the same.
11. Elevation is often measured in reference to _____, which is the average level of the ocean.

Short Answer

12. a. Can latitude lines cross? If so, where?
- b. Can longitude lines cross? If so, where?

The map below shows two different views of an island.

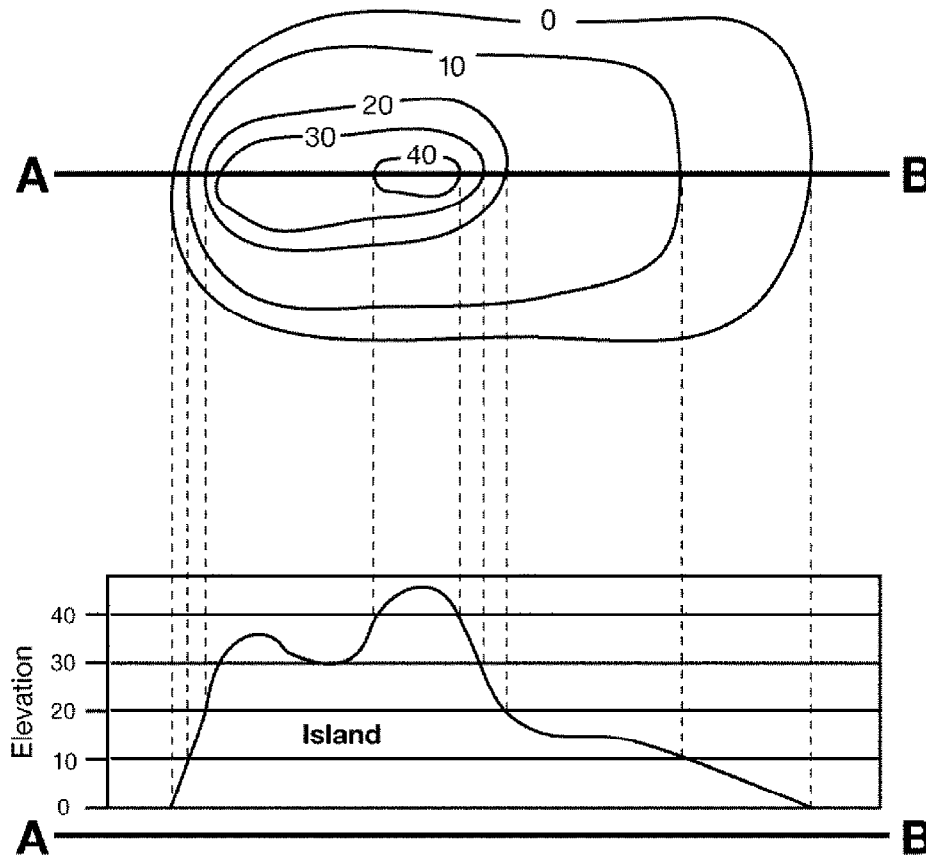


Figure 8-1

13. What type of map is the top map shown in Figure 8-1?
14. In Figure 8-1, what distance does each contour line represent?
15. In Figure 8-1, what is the **elevation** of the hill top? What is the **relief** between the top of the hill and sea level?
16. Which end of the island is steeper, A or B? How do you know?
17. The elevation drawing at the bottom of Figure 8-1 shows two bumps on the island, one higher than the other.
 - a. Why don't the two bumps show on the contour map?
 - b. How could you show the second bump?
18. What types of maps use contour lines? Explain what contour lines tell someone reading a map.
19. On a topographic map, how can you tell if a landform is rising or falling?
20. Name one method to measure the depth of the ocean. Explain how it works.
21. Name two uses for bathymetric maps.

The map below shows the coastline and ocean depth off New Jersey, New York, and Connecticut.

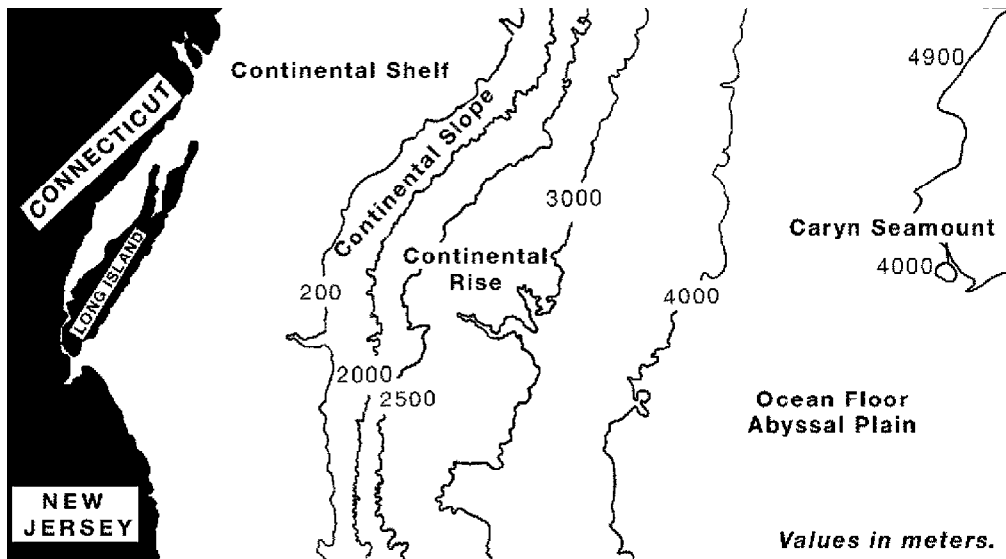


Figure 8-1A

22. What is the type of map shown in Figure 8-1A called?
23. In Figure 8-1A, why do the numbers on the contour lines increase as you travel farther out to sea from the coastline.
24. As shown in Figure 8-1A, the depth of the Continental Rise varies from 2000 to 4000 meters. What is the **relief** of the Continental Rise?
25. On a bathymetric map, how can you tell if a sea floor feature is rising or falling?

Problem

26. A map is drawn with a scale of 3 cm = 1 mile. How many centimeters equals 15 miles?
27. You have a map that shows 1 centimeter representing 1 kilometer.
 - a. Name two different types of map scales, and
 - b. Write your scale using each of those types of scales.
28. A contour map shows a scale of 1:100,000. If you are trying to plan a hike using this map, what distance should you measure on the map to equal a straight line 4 kilometers on your hike? Give your answer in centimeters.
29. Greenwich, England is located at 47° N, 0°. Accra, Ghana is located at 6° N, 0°.
 - a. Are they near the same longitude line or the same latitude line?
 - b. How many degrees apart are they?
 - c. If each degree represents about 111 km of distance, how far apart are they?

Name: _____

ID: A

Essay

30. What are the advantages and disadvantages of using a Mercator projection map?
31. Describe **latitude** according to the questions below:
 - a. What do latitude lines look like?
 - b. What types of units are used to measure latitude lines?
 - c. Name the latitude line that starts at zero. Where is this line on Earth?
32. Describe **longitude** according to the questions below:
 - a. What do longitude lines look like?
 - b. What types of units are used to measure longitude lines?
 - c. Name the longitude line that starts at zero. Where is this line on Earth?
33. If the global warming were to cause the sea level to rise along the coasts of the United States, how would a bathymetric map of the waters along the coast change? How would a topographic map of the land along the coast change?

ESN Chapter 8 Multi-format Test Answer Section

MODIFIED TRUE/FALSE

- | | | |
|---|------------------|------------------|
| 1. ANS: T
STA: S6CS5b | DIF: basic | REF: section 8.1 |
| 2. ANS: F, elevation

DIF: intermediate | REF: section 8.1 | STA: S6CS5b |
| 3. ANS: F, equator

DIF: intermediate | REF: section 8.1 | STA: S6CS5b |
| 4. ANS: F, Contour

DIF: intermediate | REF: section 8.2 | STA: S6CS5b |
| 5. ANS: T
STA: S6CS5b | DIF: basic | REF: section 8.3 |

COMPLETION

- | | | |
|--|------------------|-------------|
| 6. ANS: prime meridian

DIF: basic | REF: section 8.1 | STA: S6CS5b |
| 7. ANS: globe

DIF: basic | REF: section 8.1 | STA: S6CS5b |
| 8. ANS: international dateline

DIF: basic | REF: section 8.1 | STA: S6CS5b |
| 9. ANS: elevation

DIF: basic | REF: section 8.2 | STA: S6CS5b |
| 10. ANS: Contour lines

DIF: intermediate | REF: section 8.2 | STA: S6CS5b |
| 11. ANS: sea level

DIF: intermediate | REF: section 8.2 | STA: S6CS5b |

SHORT ANSWER

- | | | |
|---|------------------|-------------|
| 12. ANS:
a. No, latitude lines are parallel and can never cross.
b. Yes, longitude lines cross at the poles.

DIF: advanced | REF: section 8.1 | STA: S6CS5b |
|---|------------------|-------------|

13. ANS:
topographic map

DIF: basic REF: section 8.2 STA: S6CS5b

14. ANS:
10 ft

DIF: intermediate REF: section 8.2 STA: S6CS5b

15. ANS:
The elevation of the top is 40 ft.

Since elevation is defined as the distance from sea level, the relief between the hill top and the sea is the same as the elevation - 40 ft

DIF: advanced REF: section 8.2 STA: S6CS5b

16. ANS:
A is steeper because the contour lines at A are closer together. Also, you can see from the elevation that the slope is steeper at A.

DIF: advanced REF: section 8.2 STA: S6CS5b

17. ANS:
a. The contour interval is not detailed enough to show the second bump. It occurs between the 30 and the 40 ft contour lines.
b. Either make the contour interval 5 ft or add a 35 ft contour line to the map as it is.

DIF: advanced REF: section 8.2 STA: S6CS5b

18. ANS:
Contour lines are used on topographic and bathymetric maps. Contour lines show all points with the same elevation.

DIF: intermediate REF: section 8.2 | section 8.3 STA: S6CS5b

19. ANS:
If a landform is rising, the elevation will become higher; if a landform is falling, the elevation will become lower.

DIF: advanced REF: section 8.2 STA: S6CS5b

20. ANS:
Answers may vary. Correct answers include:
Echo sounding (or sonar) uses sound waves bounced off the ocean floor. By measuring the time for the echo to return to the source, and knowing the speed of sound in the water, then the depth can be calculated.

At one time, depths were measured using weighted lines or calibrated poles. These methods were very time consuming and not very accurate in deeper waters.

DIF: basic REF: section 8.3 STA: S6CS5b

21. ANS:
Answers may vary. Correct answers include:
 For commercial or recreational navigation
 To identify features of the sea floor or any body of water
 To monitor the ecology in a body of water
 To help in submarine navigation and tactics
 To find fish
 To help in dredging
- DIF: basic REF: section 8.3 STA: S6CS5b
22. ANS:
 Bathymetric map
- DIF: basic REF: section 8.3 STA: S6CS5b
23. ANS:
 The contour lines represent the average ocean depth and the ocean gets deeper as you travel from the coastline to the abyssal plain in this bathymetric map.
- DIF: intermediate REF: section 8.3 STA: S6CS5b
24. ANS:
 The relief is the difference between the high and low depths, and is equal to 2000 meters.
- DIF: intermediate REF: section 8.3 STA: S6CS5b
25. ANS:
 If a sea floor feature is rising, the depth will become lower; if a sea floor feature is falling, the depth will become greater.
- DIF: advanced REF: section 8.3 STA: S6CS5b

PROBLEM

26. ANS:
 $15 \text{ miles} \times 3 \text{ cm} = 45 \text{ cm}$
- DIF: intermediate REF: section 8.1 STA: S6CS5b
27. ANS:
Answers may vary. Correct answers include two of the following:
- Verbal scale: 1 centimeter equals 1 kilometer; 1 centimeter equals 100,000 centimeters;
 $1 \text{ cm} = 1 \text{ km}$
 - Fractional scale: $1/100,000$
 - Bar scale: A one centimeter bar may be drawn showing $1 \text{ cm} = 1 \text{ km}$
- DIF: intermediate REF: section 8.1 STA: S6CS5b

28. ANS:
 $4 \text{ km} = 4,000 \text{ m/km} \times 100 \text{ cm/m} = 400,000 \text{ cm}$

$$\text{scale} = \frac{1}{100,000} = \frac{\text{distance}}{400,000 \text{ cm}}$$

$$100,000 \times \text{distance} = 400,000 \text{ cm}$$

$$\text{distance} = 4 \text{ cm}$$

DIF: advanced REF: section 8.1 STA: S6CS5b

29. ANS:
 a. longitude line (the prime meridian)
 b. 41°
 c. $41^\circ \times 111 \text{ km/degree} = 4551 \text{ km}$

DIF: advanced REF: section 8.1 STA: S6CS5b

ESSAY

30. ANS:
 A Mercator projection map is used to convert a spherical three-dimensional globe into a flat two-dimensional map. This type of map can be used to plot courses with straight lines and accurate distances. The disadvantage of this type of map is that the landform sizes are distorted as you move out toward the poles.

DIF: intermediate REF: section 8.1 STA: S6CS5b

31. ANS:
 Latitude lines are imaginary lines that form a grid on a map or globe with longitude lines. The latitude lines are parallel lines running horizontally around the globe. They look like a ladder climbing north and south. Latitude is measured in degrees, minutes, and seconds, or alternately in decimal degrees. The equator is the latitude line found at 0° . The equator is an imaginary line running around the middle of Earth and lies between the north and south poles. Latitude lines are measured either north or south of the equator.

DIF: intermediate REF: section 8.1 STA: S6CS5b

32. ANS:
 Longitude lines are imaginary lines used with latitude lines to form a grid on a map or globe which can be used to locate any specific place on Earth. Longitude lines (or meridians) run north-south and are east or west of the prime meridian, which is an imaginary line that goes through Greenwich, England and is perpendicular to the equator. The prime meridian is the 0° line of longitude. Like latitude lines, longitude is measured in degrees, minutes, and seconds or alternatively in decimal degrees.

DIF: intermediate REF: section 8.1 STA: S6CS5b

33. ANS:
 Both topographic and bathymetric maps reference their elevations and depths from sea level. If the sea level becomes higher, a topographic map would show lower elevations from the new sea level. For example, if the sea level rose 5 meters, each land contour line on the topographic map would be 5 meters closer to sea level. The bathymetric map would show lower depths from the new sea level than the old sea level. What used to be a 20 meter depth would become a 25 meter depth.

DIF: advanced REF: section 8.2 | section 8.3 STA: S6CS5b