

Mapping Our World

SECTION 2.1 *Latitude and Longitude*

In your textbook, read about latitude and longitude.

Match the definition in Column A with the term in Column B.

Column A

- _____ 1. Science of mapmaking
- _____ 2. Imaginary line that separates Earth into northern and southern hemispheres
- _____ 3. Distance in degrees north or south of the equator
- _____ 4. Distance in degrees east or west of the prime meridian
- _____ 5. Reference point for longitude that passes through Greenwich, England, and represents 0°

Column B

- a. prime meridian
- b. longitude
- c. cartography
- d. equator
- e. latitude

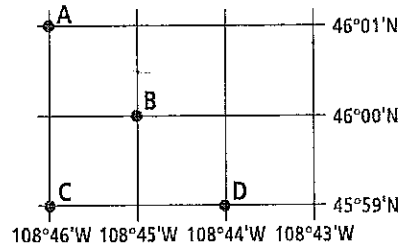
In the space at the left, ^A ~~circle true~~ if the statement is true; if the statement is false, ^B change the italicized word or phrase to make it true.

- ^{TRUE} A ^{FALSE} B 6. The equator is located halfway between the north pole and the *prime meridian*.
- A B 7. Lines of *latitude* run parallel to the equator.
- A B 8. The equator is at 180° latitude.
- A B 9. The south pole is at 90° south *longitude*.
- A B 10. *One degree* of latitude is equivalent to about 111 km on Earth's surface.
- A B 11. Each degree of latitude is divided into 360 *minutes*.
- A B 12. Lines of longitude are also called *meridians*.
- A B 13. The prime meridian is the reference line for *latitude*.
- A B 14. Points east of the prime meridian are located between 0° and 180° east longitude.
- A B 15. Lines of longitude are *semicircles* that extend from the north pole to the south pole.
- A B 16. Each degree of longitude corresponds to about 111 km at the *north pole*.
- A B 17. All meridians converge at the *poles*.

TRUE - False

SECTION 2.1 Latitude and Longitude, continued

In your textbook, read about locating places with coordinates.
Use the map grid to answer the following questions.



18. What is the latitude of point A?

- A) $46^{\circ}01'N$ B) $108^{\circ}46'W$ C) $108^{\circ}44'W$ D) $45^{\circ}59'N$

19. Which two points have the same latitude? What is that latitude?

- A) A & C @ $108^{\circ}46'W$ B) C & D @ $45^{\circ}59'N$
C) B & C @ $46^{\circ}00'N$ D) A & D @ $108^{\circ}44'W$

20. What is the longitude of point B?

- A) $46^{\circ}00'N$ B) $108^{\circ}45'W$ C) Neither A or B

21. Which two points have the same longitude? What is that longitude?

- A) A & C @ $108^{\circ}46'W$ B) C & D @ $45^{\circ}59'N$
C) B & C @ $46^{\circ}00'N$ D) A & D @ $108^{\circ}44'W$

22. What are the coordinates of point C?

- A) $45^{\circ}59'N$ by $108^{\circ}46'W$ B) $108^{\circ}46'W$ by $45^{\circ}59'N$

In your textbook, read about time zones.

Circle the letter of the choice that best completes the statement or answers the question.

23. Into how many time zones is Earth divided?

- a. 12 b. 24 c. 60 d. 360

24. Approximately how wide is each time zone?

- a. 15° b. 30° c. 60° d. 180°

25. The International Date Line is located at the

- a. 0° line of latitude c. 0° meridian
b. 180° line of latitude d. 180° meridian

26. When you travel east across the International Date Line, you

- a. advance your calendar one day c. move your calendar back one day
b. advance your calendar 12 hours d. move your calendar back 12 hours

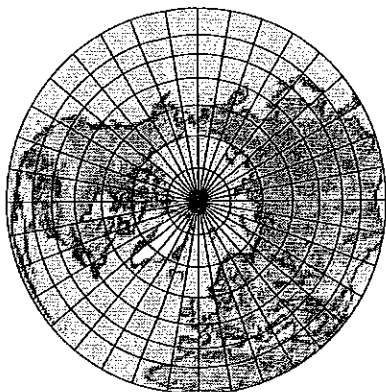
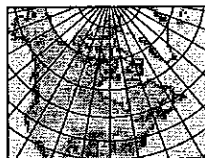
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SECTION 2.2 Types of Maps

In your textbook, read about Mercator, conic, and gnomonic projections.

Select each map projection as conic, gnomonic or Mercator.

A B C

1) A B C2) A B C3) A B CWrite the name of the map projection—A Mercator, B conic, or C gnomonic—for each description.A B C 4) Used as road and weather mapsA B C 5) Has parallel lines of latitude and longitudeA B C 6) Made by projecting points and lines from a globe onto a piece of paper that touches the globe at a single pointA B C 7) Distorts direction and distance between landmassesA B C 8) Exaggerates the areas of landmasses near the poles, but correctly shows their shapeA B C 9) Made by projecting points and lines from a globe onto a coneA B C 10) Has very little distortion in the areas or shapes of landmasses that fall along a certain line of latitudeA B C 11) Used by navigators to plot straight routes for planes and ships

SECTION 2.2 Types of Maps, continued

In your textbook, read about topographic maps and contour lines.

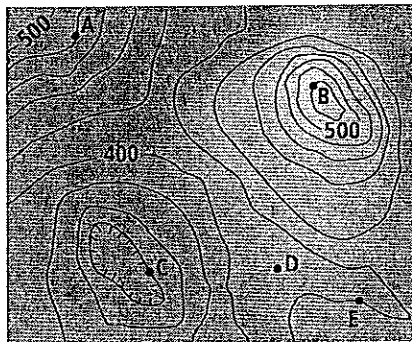
Use each of the terms below just once to complete the passage.

A contour interval **B** contour lines **C** hachures **D** index contours **E** topographic maps

Maps that show changes in elevation of Earth's surface are called **(12)** _____. On this kind of map, points of equal elevation are connected by **(13)** _____. The difference in elevation between two side-by-side contour lines is called the **(14)** _____. Contour lines whose elevation is marked by a number on the map are known as **(15)** _____. Contour lines that indicate depressions have **(16)** _____, or short lines at right angles to the contour lines.

The contour interval on the map below is 20 m.

Use the contour map to answer the following questions.



17. Which of the labeled points on the map has the highest elevation?

1 A) A B) B C) C D) D

18 What is the elevation of the highest labeled point?

A) 400m B) 480m C) 500m D) 520m

19 Which of the labeled points on the map has the lowest elevation?

A) A B) B C) C D) D E) E

20 What is the elevation of the lowest labeled point?

A) 320m B) 340m C) 400m D) 500m

SECTION 2.2 Types of Maps, continued

In your textbook, read about map legends and map scales.

Use each of the terms below to complete the following statements.

^A
fractional scale

^B
graphic scale

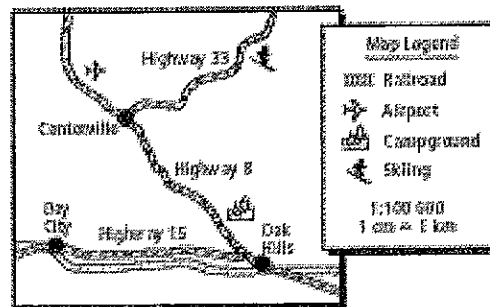
^C
map legend

^D
map scale

^E
verbal scale

21. A _____ explains what the symbols on a map represent.
22. To measure distances on a map, you need to use the _____, of which there are three types.
23. A _____ expresses distance as a statement, such as one centimeter is equal to one kilometer.
24. A _____ consists of a line that represents a certain unit of distance, such as 5 km.
25. A _____ expresses distance as a ratio, such as 1:63,500.

The map and map legend below have been reduced to fit this space. Use the map and the map legend to answer the following questions.



26. Which city on the map is closest to a campground?
 A) Centerville B) Day City C) Oak Hills
27. Which highway leads to a skiing area?
 A) Highway 8 B) Highway 15 C) Highway 33
28. Which city is NOT connected by railroad?
 A) Centerville B) Day City C) Oak Hills
29. Look at the verbal scale. If the distance from Centerville to Oak Hills is 10 km, how far apart should these cities be on the map?
 A) 1 km B) 10,000,000 cm C) 10 cm D) 1×10^{-6} cm

SECTION 2.3 Remote Sensing

In your textbook, read about the electromagnetic spectrum.

Circle the letter of the choice that best completes the statement or answers the question.

30. What is the process of data gathering that uses instruments on satellites, aircraft, or ships?
- | | |
|---------------------|-------------------|
| a. geologic mapping | c. radar |
| b. sonar | d. remote sensing |
31. Maps of the ocean floor made by Sea Beam technology rely on
- | | | | |
|------------------|----------|----------|-----------------------|
| a. visible light | b. sonar | c. radar | d. infrared radiation |
|------------------|----------|----------|-----------------------|
32. What technology uses detectors on satellites to measure the energy intensity of different parts of Earth surface to make maps?
- | | |
|-------------------|------------------------------|
| a. Sea Beam | c. Landsat |
| b. TOPEX/Poseidon | d. Global Positioning System |
33. To make detailed maps of the ocean surface, scientists use what technology?
- | | |
|-----------------------------|----------------------------------|
| a. the Landsat satellite | c. Sea Beam |
| b. TOPEX/Poseidon satellite | d. Geographic Information System |
34. What technology uses databases to make several map layers?
- | | |
|----------------------------------|-----------------------------|
| a. Geographic Information System | c. Landsat satellite |
| b. Global Positioning System | d. TOPEX/Poseidon satellite |
35. What would you use to accurately find your location in a forest?
- | | |
|----------------------|----------------------------------|
| a. Landsat satellite | c. Global Positioning System |
| b. Sea Beam | d. Geographic Information System |

In your textbook, read about Landsat satellites, the Topex/Poseidon satellite, and the Global Positioning System. Write the name of the remote sensing device—Landsat, Topex/Poseidon, or GPS—for each description.

- | | | |
|---|---|---|
| A | B | C |
| A | B | C |
- _____ 36. Uses a system of 27 satellites that transmit microwaves
- _____ 37. Uses radar to map features, such as mountains and valleys, that are on the ocean floor
- _____ 38. Uses a handheld receiver to help people determine their exact position on Earth
- _____ 39. Creates images that show surface features as different colors
- _____ 40. Used for ship and airplane navigation
- _____ 41. Picks up bulges and depressions in ocean water