

U.S.C.G. Merchant Marine Exam
Mate Offshore Supply Vessels
Q211 Navigation General – Near Coastal
(Sample Examination)

Choose the best answer to the following Multiple-Choice Questions.

1. Your vessel is on course 180°T speed 22 knots. The apparent wind is from 70° off the port bow, speed 20 knots. What are the true direction and speed of the wind?
- A. 45°T, 21.0 knots
 - B. 51°T, 24.0 knots
 - C. 58°T, 21.2 knots
 - D. 64°T, 26.0 knots

Correct answer: B

2. What is the function of a red triangular daymark?
- A. To indicate the starboard side of a channel
 - B. To mark an area of a channel where crossing is permitted
 - C. To mark the centerline of a navigable channel
 - D. To mark a prominent object of navigational interest

Correct answer: A

3. Which radar control is used to reduce sea return at close ranges?
- A. Gain control
 - B. Pulse length control
 - C. Fast time constant
 - D. Sensitivity time control

Correct answer: D

4. Which weather element cannot be measured accurately while on board a moving vessel?
- A. Temperature
 - B. Visibility
 - C. Atmospheric pressure
 - D. Wind direction

Correct answer: B

5. When trying to sight a lighthouse you notice a glare from a town in the background. How does this affect the range at which the light may be sighted?
- A. Considerably reduced and difficult to distinguish
 - B. Increased slightly due to extra lighting
 - C. Unchanged
 - D. Increased if the light is red or green due to contrast with the glare

Correct answer: A

6. What is the length of a nautical mile?
- A. 2,000 yards
 - B. 5,280 feet
 - C. 6,076 feet
 - D. 1,800 meters

Correct answer: C

7. Which buoy may be even numbered?

- A. Lighted green buoy
- B. Mid-channel buoy
- C. Unlighted nun buoy
- D. All of the above

Correct answer: C

8. Which is TRUE of mean high water?

- A. It is used to indicate the shoreline where there is a large tidal fluctuation
- B. It is used as the reference for soundings on the Gulf coast of the U.S.
- C. It is used as the reference plane for bottom contour lines
- D. It is used as the sounding datum for rivers, lakes, etc. regulated by locks

Correct answer: A

9. The shoreline shown on nautical charts of areas affected by large tidal fluctuations is usually the line of mean _____.

- A. lower low water
- B. tide level
- C. low water
- D. high water

Correct answer: D

10. What is indicated when slanted letters are used to spell the name of a charted object?

- A. The object is a hazard to vessels drawing 20 feet draft
- B. The object is always visible
- C. The position is approximate or doubtful
- D. The object is underwater or floating

Correct answer: D

11. Your ship is proceeding on course 320°T at a speed of 25 knots. The apparent wind is from 30° off the starboard bow, speed 32 knots. What is the relative direction, true direction and speed of the true wind?

- A. Relative 60°, true 040°T, 18.6 knots
- B. Relative 80°, true 040°T, 16.2 knots
- C. Relative 40°, true 080°T, 16.4 knots
- D. Relative 80°, true 060°T, 15.2 knots

Correct answer: B

12. On charts of U.S. waters, a magenta marking is NOT used for marking a _____.

- A. radio beacon
- B. 5-fathom curve
- C. prohibited area
- D. lighted buoy

Correct answer: B

13. Vessels should maintain a sharp lookout, especially during December through March, when navigating the Northern Right Whale's only known calving grounds. Where are the calving grounds located?

- A. Maine and Massachusetts
- B. Georgia and NE Florida
- C. California and Mexico
- D. Nova Scotia

Correct answer: B

14. When considering currents, which defines the term set?

- A. It is the direction from which it flows
- B. It is the velocity in knots
- C. It is the estimated current
- D. It is the direction towards which it flows

Correct answer: D

15. What describes an accurate position that is NOT based on any prior position?

- A. Dead-reckoning position
- B. Running fix
- C. Fix
- D. Estimated position

Correct answer: C

16. Which is the only cylindrical chart projection widely used for navigation?

- A. Lambert conformal
- B. Mercator
- C. Azimuthal
- D. Gnomonic

Correct answer: B

17. Which term is used to describe the time interval between successive wave crests?

- A. Frequency
- B. Period
- C. Epoch
- D. Trough

Correct answer: B

18. Red lights may appear on which buoys?

- A. Horizontally banded buoys
- B. Spherical buoys
- C. Vertically striped buoys
- D. Yellow buoys

Correct answer: A

19. You are underway on course 120°T and your maximum speed is 12 knots. The eye of a hurricane bears 150°T, 120 miles from your position. The hurricane is moving towards 295°T at 20 knots. If you maneuver at 12 knots to avoid the hurricane, what could be the maximum CPA?
- A. 89 miles
 - B. 96 miles
 - C. 105 miles
 - D. 117 miles

Correct answer: D

20. You are sailing south on the Intracoastal Waterway (ICW) when you sight a red nun buoy with a yellow square painted on it. Which of the following is TRUE?
- A. You should leave the buoy on your port hand.
 - B. The yellow square is in error and it should be a yellow triangle.
 - C. This buoy marks the end of the ICW in that geographic area.
 - D. The yellow is retro-reflective material used to assist in sighting the buoy at night.

Correct answer: A

21. A weather forecast states that the wind will commence veering. In the Northern Hemisphere, what changes will occur?
- A. The wind will shift in a clockwise manner
 - B. The wind will shift in a counterclockwise manner
 - C. The wind will continue blowing from the same direction
 - D. The wind will increase in velocity

Correct answer: A

22. Which is TRUE for the directive force acting on a gyrocompass?
- A. The force remains the same at all latitudes
 - B. The force increases as the latitude decreases, being maximum at the geographic equator
 - C. The force is greatest when a vessel is near the Earth's magnetic equator
 - D. The force increases as the latitude increases, being maximum at the geographic poles

Correct answer: B

23. To avoid error, how should you read the scale of an aneroid barometer?
- A. With your eye to the left of the pointer
 - B. With your eye slightly above the meniscus
 - C. With your eye to the right of the pointer
 - D. With your eye directly in front of the pointer

Correct answer: D

24. Under the IALA Buoyage Systems, which is TRUE of safe water marks?
- A. They may show a quick-flashing, Q(9)15s, white light
 - B. They may show a composite group-flashing, Fl(2 + 1), red light
 - C. They must show a composite group-flashing, Fl(2 + 1), green light
 - D. They may show a white Morse (A) light

Correct answer: D

25. Aneroid barometers are usually calibrated to indicate atmospheric pressure in which units?

- A. Inches of mercury and centimeters
- B. Inches of mercury and millibars
- C. Inches of mercury and millimeters
- D. Feet of mercury and millibars

Correct answer: B

26. Which item in illustration D034NG below shows an occulting light?

- A. A
- B. B
- C. C
- D. D

Correct answer: B

27. You are in a buoyed channel at night and pass a lighted buoy with an irregular characteristic. Who should you report this to?

- A. The harbor master
- B. The National Ocean Service
- C. The Coast Guard
- D. The Corps of Engineers

Correct answer: C

28. Which term is given to that half of the hurricane to the right-hand side of its track (as you face the same direction that the storm is moving) in the Northern Hemisphere?

- A. The safe semicircle
- B. The dangerous semicircle
- C. The windward side
- D. The leeward side

Correct answer: B

29. Which causes the wind flow from the horse latitudes to the doldrums to be deflected?

- A. The Coriolis force
- B. The prevailing westerlies
- C. Differing atmospheric pressures
- D. The mid-latitude, semi-permanent high

Correct answer: A

30. Which defines a light's luminous range?

- A. The maximum distance at which a light may be seen in clear weather
- B. The maximum distance at which a light may be seen under existing visibility conditions
- C. The maximum distance at which a light may be seen considering the height of the light and the height of the observer
- D. The average distance of visibility of the light

Correct answer: B

31. The apparent wind is zero when which situation exists with the true wind?

- A. The true wind is from ahead and equal to the ship's speed
- B. The true wind is from astern and equal to the ship's speed
- C. The true wind is zero
- D. The true wind is from astern and is twice the ship's speed

Correct answer: B

32. The climate of the eastern coast of the Gulf of America _____.

- A. has a Mediterranean type of climate
- B. varies from warm to subtropical
- C. has an east coast marine type of climate
- D. is humid and subtropical throughout the year

Correct answer: B

33. You are steering 143°T, and a light is picked up dead ahead at a distance of 18.2 miles at 2006. You change course to pass the light 5.5 miles off abeam to port. If you are making 14.5 knots, what is your ETA at a position 5.5 miles off the light?

- A. 2115
- B. 2118
- C. 2121
- D. 2124

Correct answer: B

34. Which term is given to a radar display which is oriented, so that north is always at the top of the screen?

- A. Unstabilized display
- B. Composite display
- C. Stabilized display
- D. Relative display

Correct answer: C

35. In a weather report, which defines the term "visibility"?

- A. The distance in miles at which prominent objects are identifiable by the unaided eye
- B. The distance an observer can see with the unaided eye
- C. The distance an observer can see a prominent object with a telescope or binoculars
- D. The ability to identify an object at night utilizing binoculars

Correct answer: A

36. Which of the following must the electronic chart of an ECDIS display, as required by IMO/IHO?

- A. Regulatory boundaries
- B. Hydrography
- C. Ferry routes
- D. All of the above

Correct answer: D

37. It is unlawful to approach within how many yards of a Northern Right Whale?

- A. 200
- B. 300
- C. 400
- D. 500

Correct answer: D

38. In the Northern Hemisphere, an observer at point II in illustration D014NG below, should experience a wind shift from what direction?

- A. east, counterclockwise to south-southwest
- B. southwest, clockwise to northwest
- C. northeast, counterclockwise to northwest
- D. northeast, clockwise to west-southwest

Correct answer: B

39. What does the Flinders bar on a magnetic compass compensate for?

- A. Induced magnetism in vertical soft iron
- B. Permanent magnetism in ship's steel
- C. Induced magnetism in horizontal soft iron
- D. Vessel's inclination from the vertical

Correct answer: A

40. Which of the symbols shown in illustration D018NG below represents an occluded front?

- A. A
- B. B
- C. C
- D. D

Correct answer: D

41. While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's foghorn 5.5 seconds after the signal was sounded. What is the distance to the shore?

- A. 3072 ft (936 meters)
- B. 3825 ft (1166 meters)
- C. 2475 ft (754 meters)
- D. 3450 ft (1052 meters)

Correct answer: A

42. What is the approximate wave length of an X Band Radar operating on a frequency of approximately 9.5 GHz?

- A. 3 cm
- B. 10 cm
- C. 30 cm
- D. 100 cm

Correct answer: A

43. Your vessel is proceeding up a channel, and you see a pair of range lights that are in line dead ahead. The chart indicates that the direction of this pair of lights is $178^{\circ}T$, and the variation is $9^{\circ}W$. If the heading of your vessel at the time of the sighting is 180° per standard magnetic compass, what is the deviation?
- A. $2^{\circ}E$
 - B. $2^{\circ}W$
 - C. $7^{\circ}E$
 - D. $7^{\circ}W$

Correct answer: C

44. What are the only magnetic compass correctors that correct for both permanent and induced effects of magnetism?
- A. Quadrantal spheres
 - B. Heeling magnets
 - C. Athwartships magnets
 - D. Fore-and-aft magnets

Correct answer: B

45. Which type of precipitation occurs only in thunderstorms with strong convection currents that convey raindrops above and below the freezing level?
- A. Freezing rain
 - B. Sleet
 - C. Hail
 - D. Rime

Correct answer: C

46. Which fog is produced by warm moist air passing over a cold surface?
- A. Frontal fog
 - B. Conduction fog
 - C. Radiation fog
 - D. Advection fog

Correct answer: D

47. What is the standard atmospheric pressure as measured in inches of mercury?
- A. 29.92
 - B. 500.0
 - C. 760.0
 - D. 1013.2

Correct answer: A

48. In waters where the cardinal system is used where would you expect to find danger?
- A. Lying to the south of a northern quadrant buoy
 - B. Lying to the east of an eastern quadrant buoy
 - C. Lying to the south of an eastern quadrant buoy
 - D. Beneath or directly adjacent to the buoy

Correct answer: A

49. Prior to reading an aneroid barometer, why should you tap the face lightly with your finger?

- A. To expose any loose connections
- B. To contract and expand the glass face
- C. To bring the pointer to its true position
- D. To demagnetize the metal elements

Correct answer: C

50. You are on course 357°T and take a relative bearing of a lighthouse of 180° . What is the true bearing to the lighthouse?

- A. 177°
- B. 003°
- C. 363°
- D. 227°

Correct answer: A

51. Which is TRUE as the temperature of an air mass decreases?

- A. The absolute humidity decreases
- B. The specific humidity decreases
- C. The dew point rises
- D. The relative humidity increases

Correct answer: D

52. Which cloud is described as a low, dark, sheet-like cloud which is associated with continuous precipitation for many hours?

- A. Cirrus cloud
- B. Cumulus cloud
- C. Nimbostratus cloud
- D. Cumulonimbus cloud

Correct answer: C

53. While on a course of 349°T , a light bears 13° on your starboard bow at a distance of 10.8 miles. What course should you steer to pass 2.5 miles abeam of the light, leaving it to starboard?

- A. 002°
- B. 349°
- C. 336°
- D. 323°

Correct answer: B

54. Which item in illustration D034NG below shows a fixed and flashing light?

- A. A
- B. B
- C. C
- D. D

Correct answer: A

55. Which type of current will have the greatest effect on the course made good for your vessel?
- A. A current that flows at nearly right angles to your course steered
 - B. A rotary current in which the direction of current flow constantly changes
 - C. A current flowing in the opposite direction as your course steered
 - D. A current flowing in the same direction as your course steered

Correct answer: A

56. What is the reaction of a gyrocompass to an applied force known as?
- A. Gravity effect
 - B. Precession
 - C. Earth rate
 - D. Gyroscopic inertia

Correct answer: B

57. What enables you to estimate the bearing of a storm's center?
- A. Buys Ballot's Law
 - B. Pascal's Law
 - C. The left-hand rule
 - D. An educated guess

Correct answer: A

58. You take a bearing of 086° of a lighthouse. Which bearing of another object would give the best fix?
- A. 242°
 - B. 196°
 - C. 261°
 - D. 291°

Correct answer: B

59. The Light List shows that a navigational light has a nominal range of 17 miles and a height above water of 28 feet (8.5 meters). Your height of eye is 32 feet (9.8 meters) and the visibility is 11.0 miles. At what approximate range will you first sight the light?
- A. 11.0 miles
 - B. 12.8 miles
 - C. 15.7 miles
 - D. 18.0 miles

Correct answer: B

60. To make sure of getting the full advantage of a favorable current, you should reach an entrance or strait at which time in relation to the predicted time of the favorable current?
- A. 30 minutes before flood, one hour after an ebb
 - B. At the predicted time
 - C. 30 minutes before
 - D. One hour after

Correct answer: C

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Illustrations: 5

61. The hurricane season in the North Atlantic Ocean reaches its peak during which month?

- A. September
- B. July
- C. November
- D. June

Correct answer: A

62. What is a lighted safe water mark fitted with to aid in its identification?

- A. Red and white retroreflective material
- B. A red and white octagon
- C. A spherical topmark
- D. A sequential number

Correct answer: C

63. In North America, which direction do the majority of the weather systems move?

- A. From south to north
- B. From west to east
- C. From east to west
- D. From north to south

Correct answer: B

64. In illustration D044NG below, what type of buoy is indicated by the letter A?

- A. Pillar
- B. Can
- C. Nun
- D. Spar

Correct answer: B

65. Which is TRUE concerning weather information?

- A. Weather information is available on scheduled marine information broadcasts
- B. It is available through VHF-FM continuous marine weather broadcasts provided by the National Weather Service
- C. Weather information is available through commercial radio broadcasts
- D. All of the above

Correct answer: D

66. A line of position is _____.

- A. a line on some point of which the vessel may be presumed to be located
- B. a line connecting two charted objects
- C. not used in a running fix
- D. the position of your vessel

Correct answer: A

67. The height of a wave is the vertical distance from which reference points?

- A. From the crest to the trough
- B. From the still water plane to the crest
- C. Between water levels at one-quarter of the wave's length
- D. From the still water plane to the trough

Correct answer: A

68. Which is TRUE concerning the flow of air around an anticyclone in the Southern Hemisphere?

- A. Air flows in a clockwise and inward direction
- B. Air flows in a counterclockwise and inward direction
- C. Air flows in a counterclockwise and outward direction
- D. Air flows in a clockwise and outward direction

Correct answer: C

69. You are inbound in a channel marked by a range. The range line is 309°T . You are steering 306°T and have the range in sight as shown in illustration D047NG below. The range continues to open. What action should you take?

- A. Alter course to the left to close the range, then alter course to 309°T .
- B. Maintain course as it is normal for the range to open as you get close.
- C. Alter course to the left until the range closes, then steer to the left of 306°T .
- D. Alter course to the right to 309°T or more to bring the range in line.

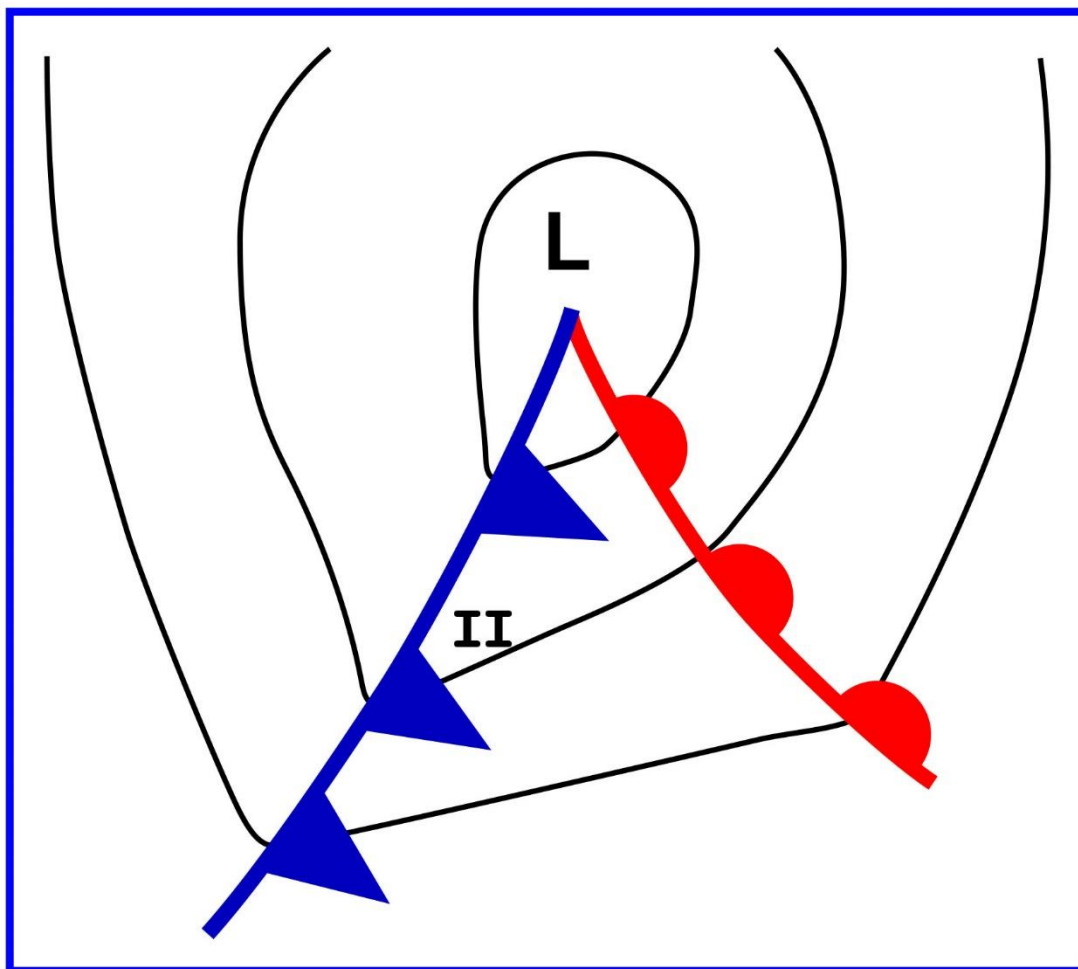
Correct answer: C

70. When using a buoy as an aid to navigation which of the following should be considered?

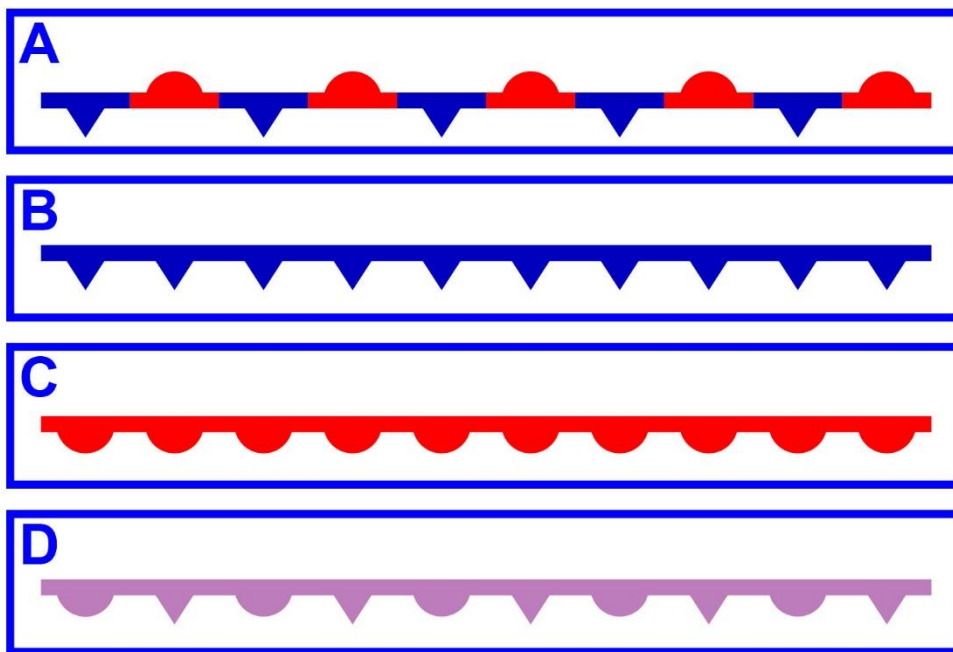
- A. The buoy may not be in the charted position.
- B. If the light is flashing the buoy should be considered to be in the charted location.
- C. The buoy should be considered to be in the charted position if it has been freshly painted.
- D. The buoy should be considered to always be in the charted position.

Correct answer: A

D014NG



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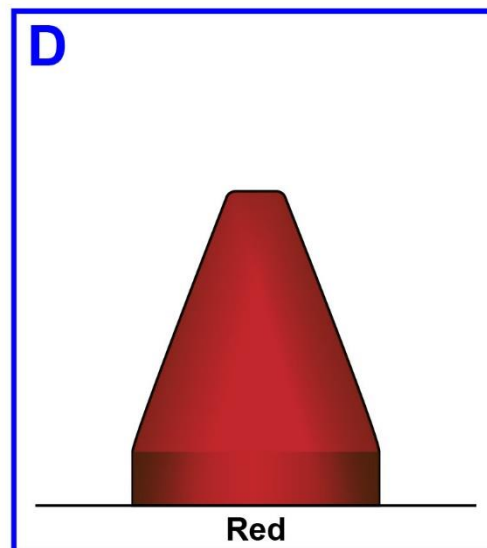
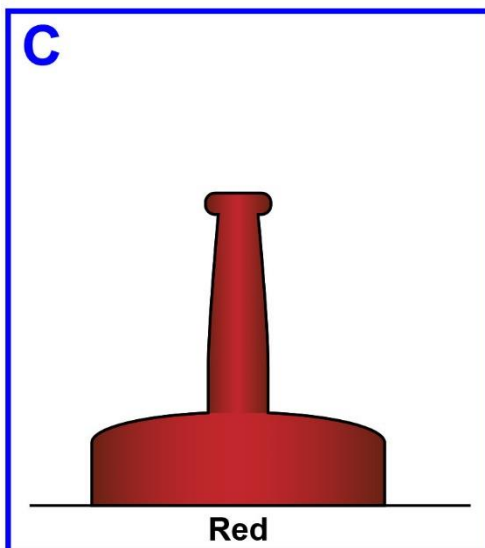
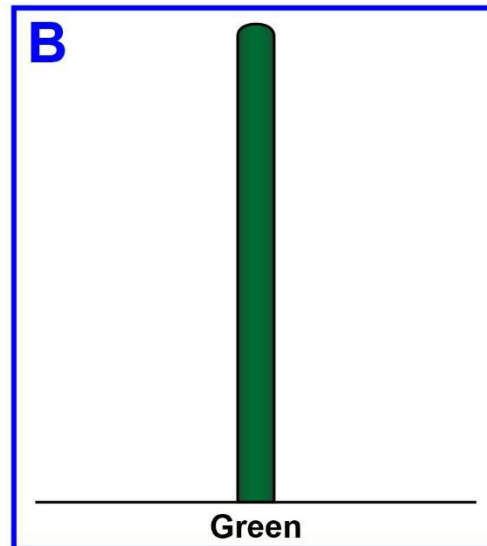
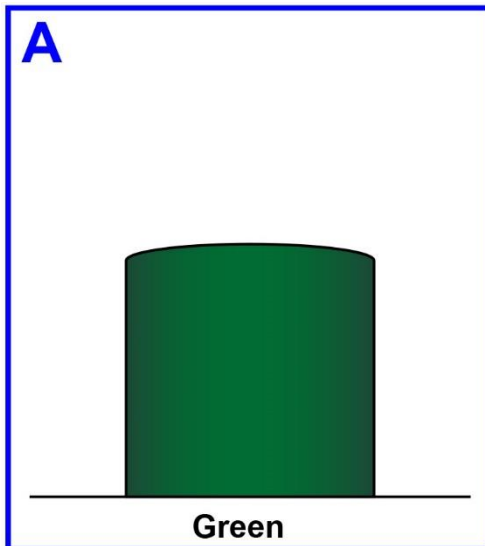
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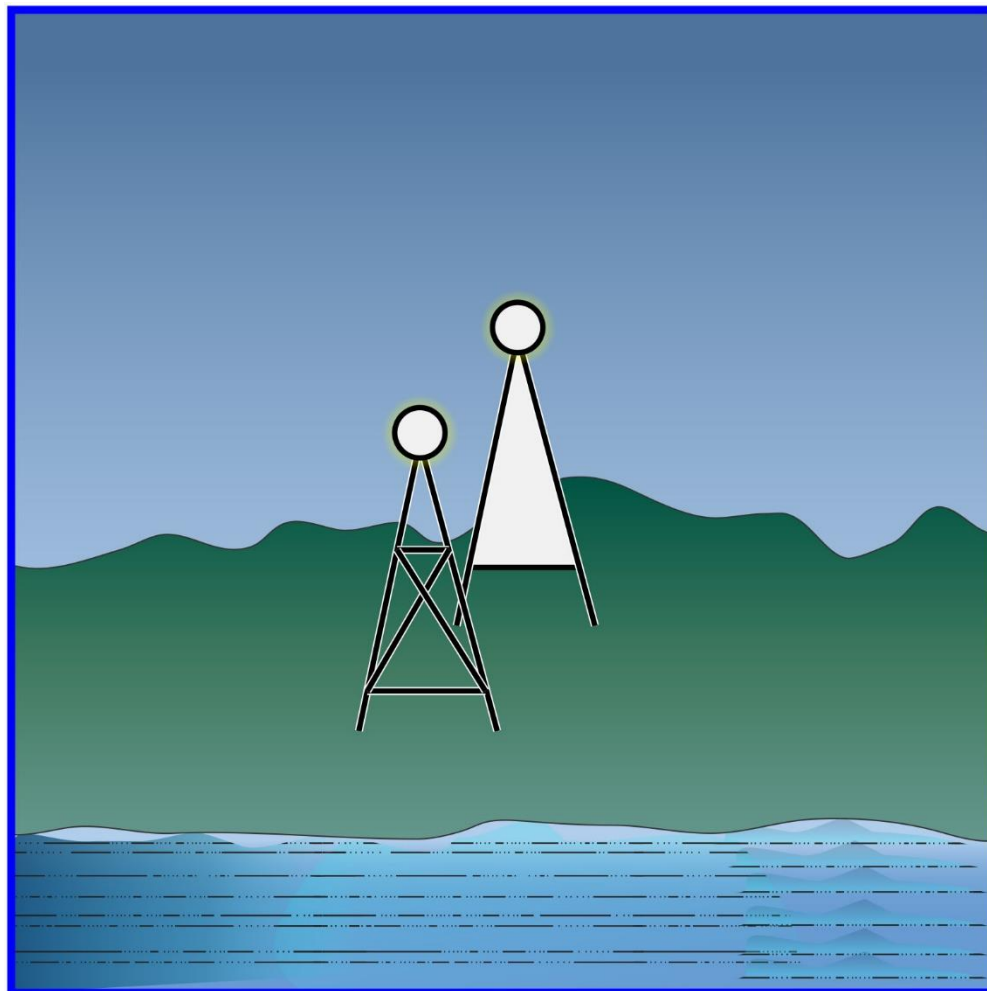
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