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. The apparent wind's speed can be zero, but only when two conditions are present. One condition is that the true _____.

- ○ (A) wind must be on the beam
- • (B) wind's speed equals the ship's speed
- ○ (C) wind must be from dead ahead
- ○ (D) wind's speed must be zero

If choice B is selected set score to 1.

2. Under the U.S. Aids to Navigation System, which category is a yellow buoy?

- • (A) A special purpose mark
- ○ (B) A safe water buoy
- ○ (C) A cardinal mark
- ○ (D) A junction buoy

If choice A is selected set score to 1.

3. A cardinal mark showing an uninterrupted quick-flashing white light indicates the deepest water is located in which quadrant?

- ○ (A) The east quadrant of the mark
- • (B) The north quadrant of the mark
- ○ (C) The south quadrant of the mark
- ○ (D) The west quadrant of the mark

If choice B is selected set score to 1.

4. Which of the following describes gyrocompass repeaters which reproduce the indications of the master gyrocompass?

- • (A) They are accurate electronic servomechanisms
- ○ (B) They are accurate only if the vessel is underway
- ○ (C) They are accurate only in the Polar regions
- ○ (D) They are hand operated

If choice A is selected set score to 1.

5. Your vessel is on course 270°T, speed 10 knots. The apparent wind is from 10° off the port bow, speed 30 knots. From which direction is the true wind?

- • (A) 255°T
- ○ (B) 345°T
- ○ (C) 075°T
- ○ (D) 165°T

If choice A is selected set score to 1.

6. What natural feature is responsible for the rather even climate found on the Florida peninsula throughout the year?

- ○ (A) The cool waters of the Sargasso sea
- ○ (B) The Bermuda high
- ○ (C) Strong masses of continental air
- • (D) The Gulf Stream

If choice D is selected set score to 1.

7. You are steaming west in the South Atlantic in an extratropical cyclonic storm, and the wind is dead ahead. According to the law of Buys Ballot, where does the center of low pressure lie?

- ○ (A) To the north of you
- ○ (B) Dead astern of you
- • (C) To the south of you
- ○ (D) Dead ahead of you

If choice C is selected set score to 1.

8. On navigational aids, what does the light characteristic "Fl(2+1)" mean?

- ○ (A) A light showing groups of two or more flashes at regular intervals
- • (B) Light flashes combined in groups, with a different number of flashes in each group
- ○ (C) A flashing light combined with a fixed light of greater brightness
- ○ (D) A fixed light varied at regular intervals by groups of two or more flashes of greater brightness

If choice B is selected set score to 1.

9. Which is TRUE concerning the characteristics of a warm air mass?

- ○ (A) Warm air masses are associated with gusty winds
- • (B) Warm air masses are known for their stability
- ○ (C) Warm air masses are associated with good visibility
- ○ (D) Warm air masses are known for their instability

If choice B is selected set score to 1.

10. You are steaming on a course of 246°T at 17 knots. At 2107 you observe a lighthouse bearing 207°T. At 2119 the lighthouse bears 179°T. What is your distance off at the second bearing?

- ○ (A) 4.2 miles
- • (B) 4.6 miles
- ○ (C) 3.9 miles
- ○ (D) 5.1 miles

If choice B is selected set score to 1.

11. How many characters does the short text messaging feature of the automatic identification system (AIS) allows for?

- ○ (A) 56 characters
- ○ (B) 64 characters
- ○ (C) 128 characters
- • (D) 158 characters

If choice D is selected set score to 1.

12. What indicates that a tropical cyclone may be within 500 to 1,000 miles of your position?

- ○ (A) The normal swell pattern becoming confused, with the length of the swell increasing
- ○ (B) An overcast sky with steadily increasing rain from nimbostratus clouds
- • (C) A pumping of the barometer up and down a few millibars
- ○ (D) A sudden wind shift from southwest to northwest followed by steadily increasing winds

If choice C is selected set score to 1.

13. Your vessel is on course 150°T, speed 17 knots. The apparent wind is from 40° off the starboard bow, speed 15 knots. What is the speed of the true wind?

- ○ (A) 9.0 knots
- ○ (B) 10.2 knots
- • (C) 11.0 knots
- ○ (D) 12.0 knots

If choice C is selected set score to 1.

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

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

If choice A is selected set score to 1.

15. When within 300 miles of a named tropical storm or hurricane, it is standard practice to send weather reports at which time interval?

- ○ (A) Every 8 hours
- ○ (B) Every hour
- ○ (C) Every 6 hours
- • (D) Every 3 hours

If choice D is selected set score to 1.

16. How can you follow the approach of a dangerous cyclonic storm?

- ○ (A) Utilizing the National Weather Service Observing Handbook No.1, Marine Surface Observations
- ○ (B) Review the Coast Pilot or Sailing Directions
- ○ (C) By monitoring the change in the sea temperature
- • (D) By a newspaper, a weather map, a weather fax, or a weather forecast

If choice D is selected set score to 1.

17. Buoys which mark dredging areas are painted which color?

- ○ (A) Black
- • (B) Yellow
- ○ (C) Red
- ○ (D) Green

If choice B is selected set score to 1.

18. Which is TRUE of a preferred-channel buoy?

- • (A) They may be lettered
- ○ (B) They show a white light
- ○ (C) They are spherical
- ○ (D) All of the above

If choice A is selected set score to 1.

19. Freezing salt water spray should be anticipated when the air temperature drops below what temperature?

- ○ (A) -40°F (-28.9°C)
- ○ (B) 32°F (0.0°C)
- ○ (C) 0°F (-17.8°C)
- • (D) 28°F (-2.2°C)

If choice D is selected set score to 1.

20. When a light is first seen on the horizon it will disappear again if the height of eye is immediately lowered several feet. When the eye is raised to its former height the light will again be visible. Which term is given to this process?

- ○ (A) Raising a light
- ○ (B) Obscuring a light
- • (C) Bobbing a light
- ○ (D) Checking a light

If choice C is selected set score to 1.

21. Which of the following is associated with consistently high barometric pressure?

- ○ (A) The prevailing westerlies
- ○ (B) The doldrums
- ○ (C) The trade winds
- • (D) The horse latitudes

If choice D is selected set score to 1.

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

- • (A) Air flows in a counterclockwise and outward direction
- ○ (B) Air flows in a clockwise and inward direction
- ○ (C) Air flows in a counterclockwise and inward direction
- ○ (D) Air flows in a clockwise and outward direction

If choice A is selected set score to 1.

23. Under the IALA-B Buoyage System, when entering from seaward which lateral system buoy as shown in illustration D046NG below, should be left to port?

- ○ (A) A
- ○ (B) B
- ○ (C) C
- • (D) D

If choice D is selected set score to 1.

24. How will the signal from a ramark show on the PPI?

- ○ (A) Dashed circle at the same range as the transponder
- ○ (B) Circle surrounding the transponder
- • (C) Radial line from the transponder to the center of the PPI
- ○ (D) Coded signal on the same bearing and at a greater range then the transponder

If choice C is selected set score to 1.

25. What is a barometric pressure reading of 29.92 inches of mercury is equivalent to?

- ○ (A) 766 millimeters of mercury
- ○ (B) 76 centimeters of water
- ○ (C) 29.92 feet of water
- • (D) 1013.25 millibars

If choice D is selected set score to 1.

26. Which symbol represents a 2-fathom curve?

- ○ (A) ____ . ____ . ____ .
- ○ (B) -- -- --
- ○ (C) .. ____ .. ____ .. ____
- • (D) .. ..

If choice D is selected set score to 1.

27. Which defines a wave's fetch?

- ○ (A) The distance a wave travels between formation and decay
- ○ (B) The time in seconds required for two crests to pass a given point
- ○ (C) The measurement of a wave's steepness
- • (D) The stretch of water over which a wave-forming wind blows

If choice D is selected set score to 1.

28. Which of the following data layer categories is NOT displayed on ECDIS?

- ○ (A) ECDIS warnings and messages
- ○ (B) Notice to Mariners information
- • (C) Ship hydrodynamic information
- ○ (D) Hydrographic Office data

If choice C is selected set score to 1.

29. You are approaching Chatham Strait from the south in foggy weather. You have Coronation Island and Hazy Islands on the radar. Suddenly the radar malfunctions. You then resort to using whistle echoes to determine your distance off Coronation Island. Your stopwatch reads 16.3 seconds for the echo to be heard. How far are you off Coronation Island?

- ○ (A) 1.0 mile
- • (B) 1.5 miles
- ○ (C) 2.0 miles
- ○ (D) 2.5 miles

If choice B is selected set score to 1.

30. Which is TRUE of a sea breeze?

- (A) A wind that blows towards an island during the day
- (B) A wind caused by the distant approach of a hurricane
- (C) A wind caused by cold air descending a coastal incline
- (D) A wind that blows towards the sea at night

If choice A is selected set score to 1.

31. A current perpendicular to a vessel's track has the greatest effect on the vessel's course made good _____.

- (A) in deep water
- (B) at low vessel speeds
- (C) in shallow water
- (D) at high vessel speeds

If choice B is selected set score to 1.

32. What is the characteristic of a quick flashing light?

- (A) Shows not less than 60 flashes per minute
- (B) Shows groups of 2 or more flashes at regular intervals
- (C) Durations of light and darkness are equal
- (D) Shows quick flashes for about 5 seconds followed by a 1 second dark period

If choice A is selected set score to 1.

33. In the Northern Hemisphere, your vessel is believed to be in the direct path of a hurricane, and plenty of sea room is available. Which is the best course of action?

- (A) Place the wind on the port quarter, note the course, and head in that direction making as much way as possible
- (B) Place the wind on the starboard bow, note the course, and head in that direction making as much way as possible
- (C) Place the wind on the starboard quarter, note the course, and head in that direction making as much way as possible
- (D) Place the wind on the port bow, note the course, and head in that direction making as much way as possible

If choice C is selected set score to 1.

34. How can the accuracy of an azimuth circle be checked?

- ○ (A) ensuring that the alignment marks on the inner face of the circle are in line with those on the repeater on relative bearings of 000° and 090°
- • (B) comparing observed azimuths at different altitudes with computed values at the times of observation to see if the difference is constant
- ○ (C) aligning the relative bearing markings so that 000° is on the lubber's line and the line of sight passes over the center of the compass
- ○ (D) sighting a terrestrial range in line and comparing the observed bearing against the charted bearing

If choice B is selected set score to 1.

35. When cold air displaces warm air you have which type of front?

- ○ (A) A stationary front
- • (B) A cold front
- ○ (C) A warm front
- ○ (D) An occluded front

If choice B is selected set score to 1.

36. Which type of cloud is composed entirely of ice crystals and is found at very high altitudes?

- ○ (A) Cumulus
- ○ (B) Stratus
- ○ (C) Nimbostratus
- • (D) Cirrus

If choice D is selected set score to 1.

37. The datum from which the predicted heights of tides are reckoned in the tide tables is _____.

- • (A) the same as that used for the charts of the locality
- ○ (B) given in table three of the tide tables
- ○ (C) mean low water
- ○ (D) the highest possible level

If choice A is selected set score to 1.

38. Which data must ECDIS be able to record at one-minute intervals?

- • (A) Course made good history
- ○ (B) Time since departure
- ○ (C) Estimated time of arrival
- ○ (D) Shaft RPM

If choice A is selected set score to 1.

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

- ○ (A) Azimuthal
- ○ (B) Lambert conformal
- ○ (C) Gnomonic
- • (D) Mercator

If choice D is selected set score to 1.

40. To find a magnetic compass course from a true course what must you apply?

- ○ (A) Variation
- • (B) Deviation and variation
- ○ (C) Magnetic anomalies (local disturbances)
- ○ (D) Deviation

If choice B is selected set score to 1.

41. In the Southern Hemisphere winds in a low pressure system rotate in which direction?

- ○ (A) A counterclockwise direction
- ○ (B) A northeasterly direction
- ○ (C) A northerly direction
- • (D) A clockwise direction

If choice D is selected set score to 1.

42. 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) Increased if the light is red or green due to contrast with the glare
- ○ (B) Increased slightly due to extra lighting
- ○ (C) Unchanged
- • (D) Considerably reduced and difficult to distinguish

If choice D is selected set score to 1.

43. Which type of daymark is used to mark the starboard side of the channel when entering from sea?

- ○ (A) Red and white octagon
- ○ (B) Green square
- ○ (C) Black and white diamond
- • (D) Red triangle

If choice D is selected set score to 1.

44. What is the purpose of the "reference hand" on an aneroid barometer?

- ○ (A) To provide a correction for height above sea level
- • (B) To indicate any change in the reading of the barometer
- ○ (C) To adjust the barometer
- ○ (D) To provide a correction for temperature changes

If choice B is selected set score to 1.

45. Which term describes a light, feathery deposit of ice by sublimation of water vapor directly into the crystalline form on objects whose temperatures are below freezing?

- ○ (A) Snow
- ○ (B) Glaze
- • (C) Frost
- ○ (D) Dew

If choice C is selected set score to 1.

46. Which position includes the effects of wind and current?

- • (A) Estimated position
- ○ (B) Set position
- ○ (C) Leeway position
- ○ (D) Dead reckoning position

If choice A is selected set score to 1.

47. What results when warm moist air blows over a colder surface and is cooled below its dew point?

- ○ (A) Frost smoke
- ○ (B) Ice fog
- ○ (C) Radiation fog
- • (D) Advection fog

If choice D is selected set score to 1.

48. Mean lower low water is the reference plane used for which measurements?

- ○ (A) The heights above water for lights, mountains, etc.
- ○ (B) The water depths on the U.S. east coast only
- ○ (C) All vertical measurements
- • (D) The soundings on the U.S. east and west coasts

If choice D is selected set score to 1.

49. You are underway on course 050°T and your maximum speed is 11 knots. The eye of a hurricane bears 070°T, 80 miles from your position. The hurricane is moving towards 270°T at 19 knots. If you maneuver at 11 knots to avoid the hurricane, what could be the maximum CPA?

- ○ (A) 79 miles
- ○ (B) 84 miles
- • (C) 66 miles
- ○ (D) 74 miles

If choice C is selected set score to 1.

50. The Light List shows that a navigational light has a nominal range of 6 miles and a height above water of 18 feet (5.5 meters). Your height of eye is 47 feet (14.3 meters) and the visibility is 1.5 miles. At what approximate range will you first sight the light?

- ○ (A) 1.5 miles
- • (B) 2.0 miles
- ○ (C) 6.0 miles
- ○ (D) 12.7 miles

If choice B is selected set score to 1.

51. As you enter a channel from seaward in a U.S. port, which is TRUE of the numbers on the starboard side buoys?

- • (A) They increase and the buoys are red
- ○ (B) They decrease and the buoys are red
- ○ (C) They decrease and the buoys are black
- ○ (D) They increase and the buoys are green

If choice A is selected set score to 1.

52. What type of clouds are associated with a cold front?

- ○ (A) Altostratus and fracto-cumulus
- ○ (B) Altostratus and cirrus
- • (C) Cumulus and cumulonimbus
- ○ (D) Cirrus and cirrostratus

If choice C is selected set score to 1.

53. Which term is used to describe the wind speed and direction observed from a moving vessel?

- ○ (A) The true wind
- ○ (B) The coordinate wind
- • (C) The apparent wind
- ○ (D) The anemometer wind

If choice C is selected set score to 1.

54. You are inbound in a channel marked by a range. The range line is 216° T. You are steering 213° T and have the range in sight as shown in illustration D048NG below. Which action should you take?

- ○ (A) Immediately alter course to 216° T if the range is closing.
- ○ (B) Continue on the present heading until the range is in line then alter course to the right.
- ○ (C) Immediately alter course to the left to bring the range in line.
- • (D) Immediately alter course to the right to bring the range in line.

If choice D is selected set score to 1.

55. A single line of position combined with a dead-reckoning position results in a(n) _____.

- ○ (A) fix
- • (B) estimated position
- ○ (C) running fix
- ○ (D) assumed position

If choice B is selected set score to 1.

56. Your vessel is proceeding down 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 229°T, and variation is 6°W. If the heading of your vessel at the time of the sighting is 232° per standard magnetic compass, what is the deviation?

- • (A) 3°E
- ○ (B) 9°E
- ○ (C) 3°W
- ○ (D) 9°W

If choice A is selected set score to 1.

57. In addition to the National Weather Service, what agency provides plain-language radio weather advisories for the coastal waters of the United States?

- ○ (A) American Meteorological Service
- ○ (B) U.S. Hydrological Survey
- • (C) U.S. Coast Guard
- ○ (D) National Geospatial-Intelligence Agency

If choice C is selected set score to 1.

58. You are on course 344°T and take a relative bearing of a lighthouse of 090°. What is the true bearing to the lighthouse?

- ○ (A) 016°
- • (B) 074°
- ○ (C) 254°
- ○ (D) 270°

If choice B is selected set score to 1.

59. Your vessel is underway on a course of 323.5°T at a speed of 16 knots. At 1945 a light bears 350°T. At 2010 the light bears 008.5°T. What will be your distance off when abeam of the light?

- ○ (A) 8.7 miles
- ○ (B) 3.3 miles
- ○ (C) 4.8 miles
- • (D) 6.7 miles

If choice D is selected set score to 1.

60. How are Coast Pilots and navigational charts kept corrected and up-to-date?

- ○ (A) Current Tables
- ○ (B) Tide Tables
- ○ (C) By the use of pilot charts
- • (D) Notices to Mariners

If choice D is selected set score to 1.

61. The dry bulb temperature is 78°F and the wet bulb temperature is 62°F. What is the relative humidity?

- ○ (A) 16%
- ○ (B) 24%
- • (C) 39%
- ○ (D) 79%

If choice C is selected set score to 1.

62. Which is TRUE concerning compass error?

- ○ (A) Compass error is variation plus compass course
- • (B) Compass error is the sum of variation and deviation
- ○ (C) Compass error is the difference between true and magnetic heading
- ○ (D) Compass error is equal to deviation minus variation

If choice B is selected set score to 1.

63. Where can information about the direction and velocity of rotary tidal currents be found?

- • (A) Tidal Current Tables
- ○ (B) Mariner's Guide
- ○ (C) Tide Tables
- ○ (D) Nautical Almanac

If choice A is selected set score to 1.

64. 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 right to 309°T or more to bring the range in line.
- • (D) Alter course to the left until the range closes, then steer to the left of 306°T.

If choice D is selected set score to 1.

65. You are entering an east coast port and see a buoy with a yellow triangle painted on it. What does the symbol indicate?

- ○ (A) The buoy is a special mark
- • (B) You are in the vicinity of the ICW
- ○ (C) The buoy designates a sharp turn in the channel
- ○ (D) The buoy is off station

If choice B is selected set score to 1.

66. You take a bearing of 142° and 259° of two objects. Which bearing of a third object will give the best fix?

- ○ (A) 234°
- ○ (B) 238°
- • (C) 201°
- ○ (D) 081°

If choice C is selected set score to 1.

67. Which class of tide prevails in the greatest number of important harbors on the Atlantic Coast?

- ○ (A) Interval
- • (B) Semidiurnal
- ○ (C) diurnal
- ○ (D) Mixed

If choice B is selected set score to 1.

68. The survey information upon which a chart is based is found at which location?

- ○ (A) At any convenient location
- ○ (B) At the top center of the next line
- • (C) Near the chart title
- ○ (D) At the lower left corner

If choice C is selected set score to 1.

69. *(4.1.1.3-4)* In illustration D044NG below, what type of buoy is indicated by the letter A?

- ○ (A) Nun
- ○ (B) Pillar
- ○ (C) Spar
- • (D) Can

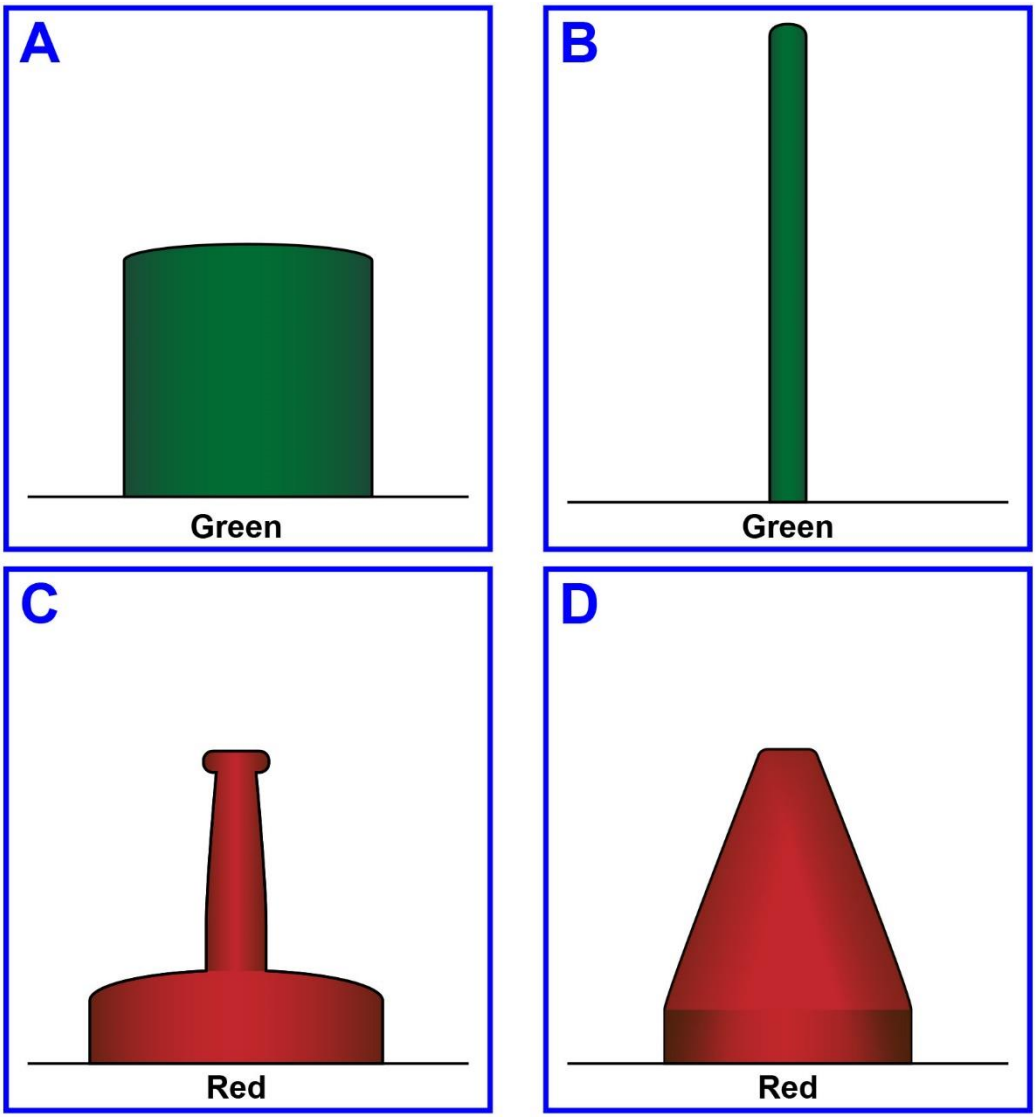
If choice D is selected set score to 1.

70. On U.S. charts, how you can tell if a named feature such as a rock (i.e. Great Eastern Rock in Block Island Sound) is submerged?

- • (A) style of type used to print the name
- ○ (B) color of ink used to print the name
- ○ (C) magenta circle around the feature
- ○ (D) dashed circle around the feature

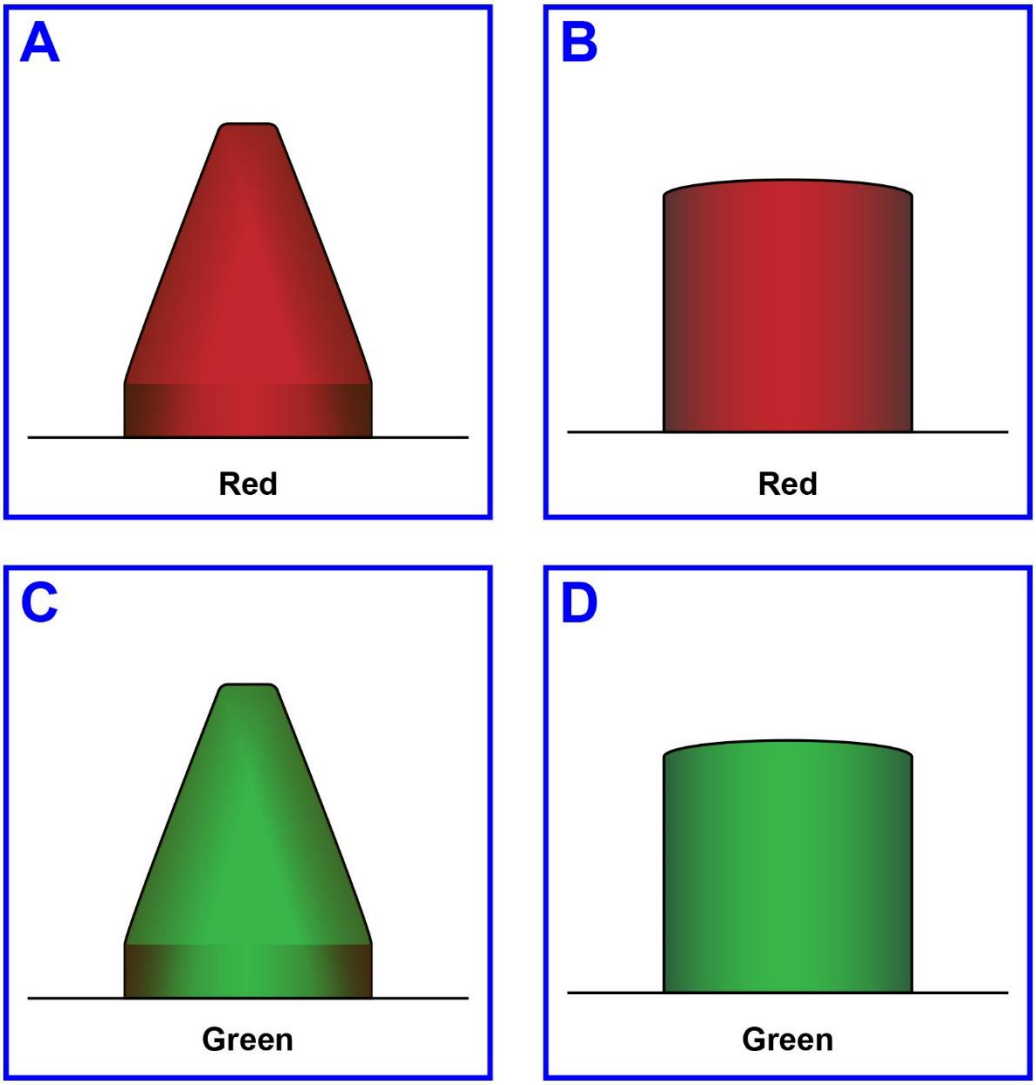
If choice A is selected set score to 1.

D044NG



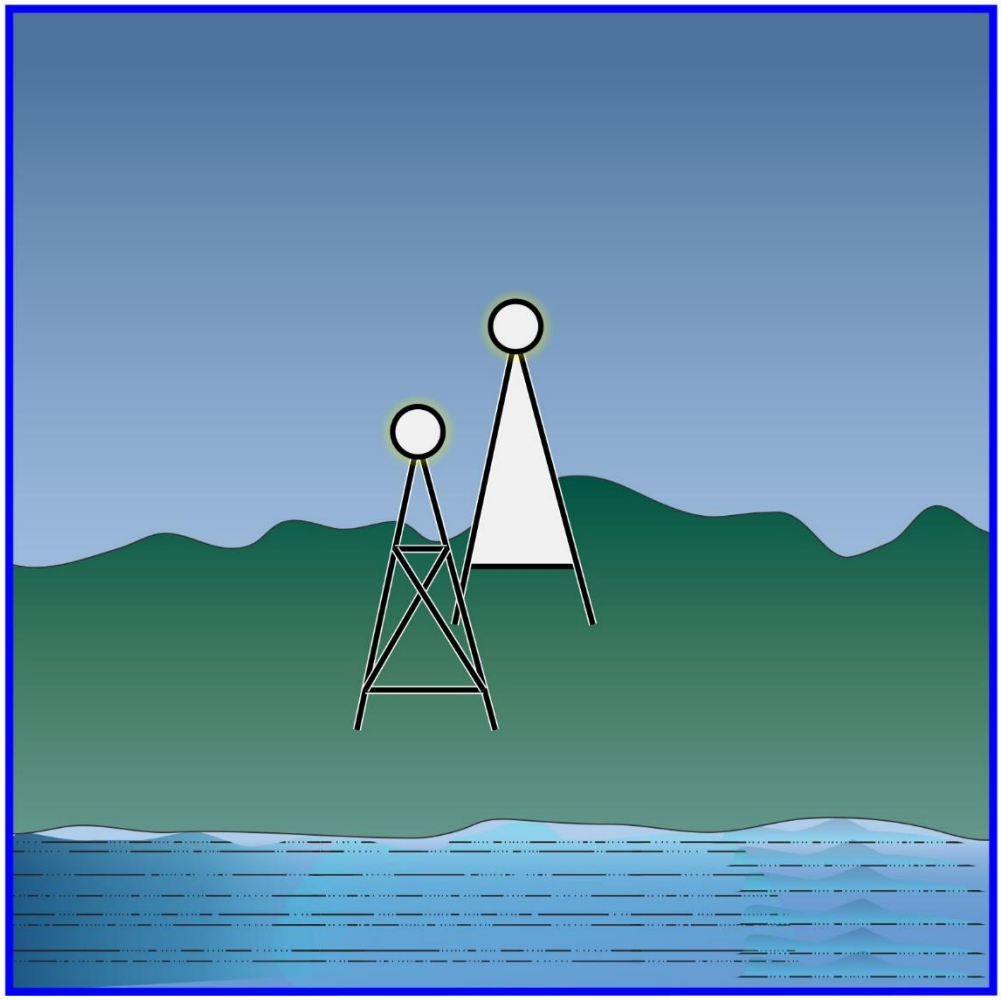
Adapted for testing purposes only from CUTLER, Dutton’s Nautical Navigation, 15th edition
Copyright © 2004 by the U.S. Naval Institute
Further reproduction prohibited without permission

D046NG



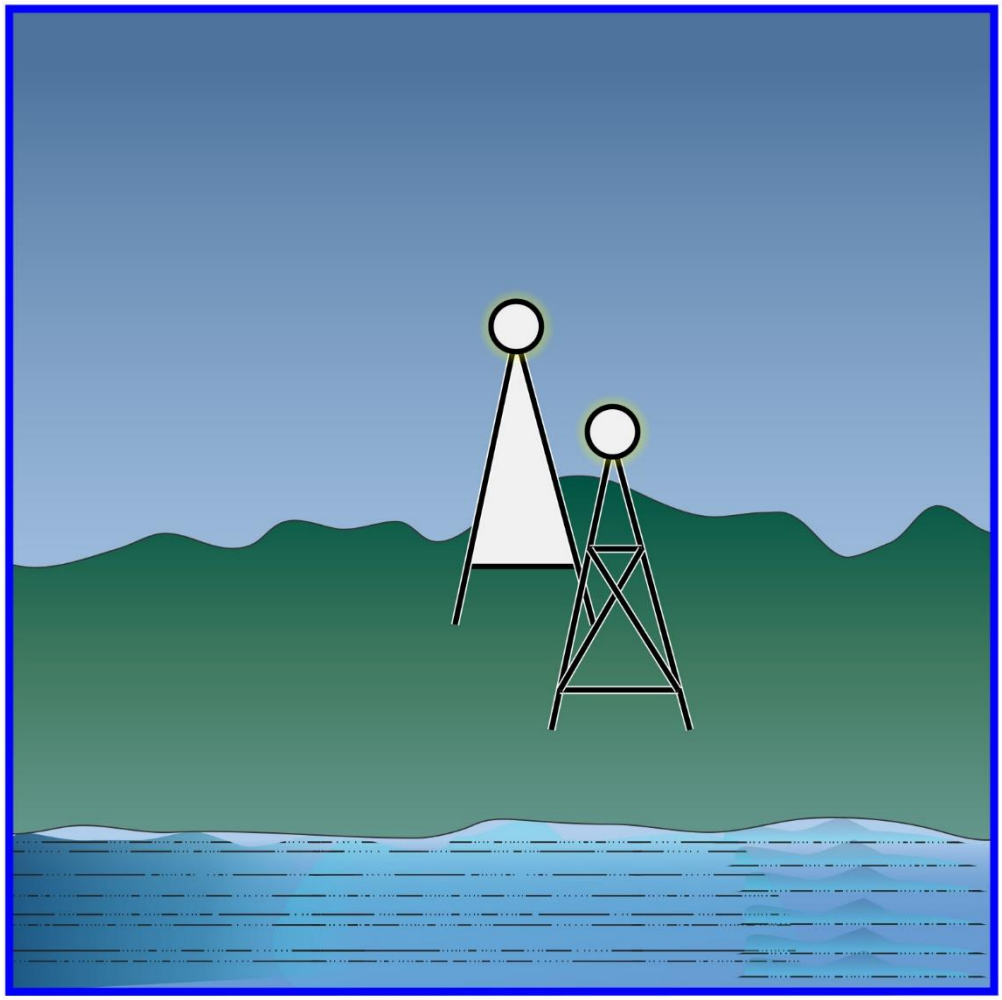
Adapted for testing purposes only from CUTLER, Dutton’s Nautical Navigation, 15th edition
Copyright © 2004 by the U.S. Naval Institute
Further reproduction prohibited without permission

D047NG



Adapted for testing purposes only from BOWDITCH, The American Practical Navigator, An Epitome of Navigation, 2002 Bicentennial Edition
Copyright © 2002 by The National Imagery and Mapping Agency, U. S. Government
Further reproduction prohibited without permission

D048NG



Adapted for testing purposes only from BOWDITCH, The American Practical Navigator, An Epitome of Navigation, 2002 Bicentennial Edition
Copyright © 2002 by The National Imagery and Mapping Agency, U. S. Government
Further reproduction prohibited without permission