

U.S.C.G. Merchant Marine Exam  
Master/Chief Mate Offshore Supply Vessels  
Q204 Navigation General – Oceans  
(Sample Examination)

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

1. You take a bearing of  $264^\circ$  of a lighthouse. What bearing of another object would give the best fix?

- A.  $120^\circ$
- B.  $289^\circ$
- C.  $081^\circ$
- D.  $350^\circ$

Correct answer: D

2. Barometers are calibrated at which standard temperature?

- A.  $0^\circ\text{F}$
- B.  $32^\circ\text{F}$
- C.  $60^\circ\text{F}$
- D.  $70^\circ\text{F}$

Correct answer: B

3. Which is TRUE concerning a first magnitude star?

- A. It is 2.5 times as bright as a second magnitude star
- B. It is 3 times as bright as a second magnitude star
- C. It is 5 times as bright as a second magnitude star
- D. It is 10 times as bright as a second magnitude star

Correct answer: A

4. Coral atolls, or a chain of islands at right angles to the radar beam, may show as a long line rather than as individual targets. What causes this distortion?

- A. The effects of beam width
- B. The multiple-target resolution factor
- C. Limitations on range resolution
- D. The pulse length of the radar

Correct answer: A

5. Your present weather is sunny with a steady barometer. A low swell approaches your vessel from the south with crests passing at relatively long periods of about four per minute. What does this usually indicate?

- A. An extra-tropical cyclone
- B. A warm front from the south
- C. A tropical cyclone south of your vessel
- D. A hurricane about 100 miles south of your vessel and heading in your direction

Correct answer: C

6. Why are low altitude sun sights not generally used?
- A. Sextants may have large errors at small angles of elevation.
  - B. The glare on the horizon causes irradiation errors.
  - C. Modern sight reduction tables are not complete for low altitudes below 5°.
  - D. Errors due to unusual refraction may exist.

Correct answer: D

7. Which is most commonly associated with fog?
- A. A warm front at night
  - B. A low-pressure area
  - C. An anticyclone
  - D. A cold front in the spring

Correct answer: A

8. The range of tide is the \_\_\_\_\_.
- A. distance the tide moves out from the shore
  - B. maximum depth of the water at high tide
  - C. difference between the heights of high and low tide
  - D. duration of time between the high and low tide

Correct answer: C

9. If you observe a rapid fall of barometric pressure, which action should you take?
- A. Call the Coast Guard to verify the change
  - B. Contact the NWS or a local radio station
  - C. Know that the barometer is not working properly
  - D. Prepare for an onset of stormy weather with strong winds

Correct answer: D

10. You are heading out to sea in a buoyed channel and see a quick flashing green light on a buoy ahead of you. In U.S. waters, how should you leave the buoy?
- A. About 50 yards off on either side
  - B. To starboard
  - C. To port
  - D. Well clear on either side

Correct answer: B

11. Which is the standard meridian for the time zone +1?
- A. 15°W
  - B. 0°
  - C. 7 1/2°W
  - D. 7 1/2°E

Correct answer: A

- 12.** Your vessel is located at position I on the weather map in illustration D013NG below. You should experience which weather condition?
- A. Steady precipitation
  - B. Thundershowers
  - C. Clear skies with warm temperatures
  - D. Overcast skies with rising temperature

Correct answer: B

- 13.** Your vessel is steering course 299°psc, variation for the area is 7°W, and deviation is 4°W. The wind is from the southwest, producing a 3° leeway. What true course are you making good?
- A. 313°T
  - B. 296°T
  - C. 299°T
  - D. 291°T

Correct answer: D

- 14.** Which publication indicates the HYDROLANTS or HYDROPACS issued since the previous working day?
- A. Daily Memorandum
  - B. Summary of Corrections
  - C. Broadcast Notice to Mariners
  - D. Local Notice to Mariners

Correct answer: A

- 15.** The Light List shows a lighted aid to navigation on the left bank. This means that the light can be seen on the starboard side of a vessel under which circumstances?
- A. The vessel is descending the river
  - B. The vessel is proceeding towards sea
  - C. The vessel is crossing the river
  - D. The vessel is ascending the river

Correct answer: D

- 16.** The winds of the "roaring forties" are strongest near which latitude?
- A. 40°N
  - B. 50°S
  - C. 40°S
  - D. 50°N

Correct answer: B

- 17.** How are you informed of defects or changes in aids to navigation?
- A. Local Notice to Mariners
  - B. Marine Safety Information Website
  - C. Weekly Notice to Mariners
  - D. All of the above

Correct answer: D

**18.** In the horizon system of coordinates what is equivalent to the poles on the Earth?

- A. Celestial poles
- B. Ecliptic poles
- C. Zenith, nadir
- D. Nodes

Correct answer: C

**19.** If several navigational lights are visible at the same time, each one may be positively identified by checking all of the following EXCEPT what against the Light List?

- A. Intensity
- B. Period
- C. Rhythm
- D. Color

Correct answer: A

**20.** You are on course  $222^{\circ}\text{T}$  and take a relative bearing of a lighthouse of  $025^{\circ}$ . What is the true bearing to the lighthouse?

- A.  $247^{\circ}$
- B.  $197^{\circ}$
- C.  $315^{\circ}$
- D.  $335^{\circ}$

Correct answer: A

**21.** What is the average speed of the movement of a hurricane following the recurvature of its track?

- A. 20 to 30 knots
- B. 40 to 50 knots
- C. Over 60 knots
- D. 5 to 10 knots

Correct answer: A

**22.** When observing a rapid rise in barometric pressure, what may you expect?

- A. Clear weather with no wind, but the possibility of rain or snow within 24 hours
- B. Clearing weather, possibly accompanied by high winds
- C. Deteriorating weather with rain or snow
- D. Heavy rain or severe thundershowers

Correct answer: B

**23.** Your vessel is steering  $096^{\circ}\text{T}$  at 17 knots. At 1847 a light bears  $057^{\circ}\text{T}$ , and at 1916 the same light bears  $033^{\circ}\text{T}$ . What will be your distance off abeam?

- A. 11.4 miles
- B. 11.9 miles
- C. 9.9 miles
- D. 10.7 miles

Correct answer: A

- 24.** If the gyrocompass error is east, what describes the error and the correction to be made to gyrocompass headings to obtain true headings?
- A. The readings are too high, and the amount of the error must be subtracted from the compass to obtain true
  - B. The readings are too low, and the amount of the error must be subtracted from the compass to obtain true
  - C. The readings are too low (small numerically), and the amount of the error must be added to the compass to obtain true
  - D. The readings are too high (large numerically), and the amount of the error must be added to the compass to obtain true

Correct answer: C

- 25.** In which months will the North Equatorial Countercurrent be strongest?
- A. January and February
  - B. April and May
  - C. October and November
  - D. July and August

Correct answer: D

- 26.** At 0000 you fix your position and plot a new DR track line. At 0200 you again fix your position, and it is 0.5 mile east of your DR. Which statement is TRUE?
- A. The current is westerly at 0.5 knot.
  - B. The current cannot be determined.
  - C. The drift is 0.25 knot.
  - D. You must increase speed to compensate for the current.

Correct answer: C

- 27.** Which statement is TRUE concerning a Mercator projection?
- A. The mileage between the meridians is increased as the latitude increases.
  - B. The length of the meridians is increased to provide for equal expansion in all directions.
  - C. Degrees of longitude decrease in length as latitude increases.
  - D. The length of the meridians remains constant at all latitudes

Correct answer: B

- 28.** The National Geospatial-Intelligence Agency (formerly the National Imagery and Mapping Agency) would produce a chart of the coast of which area?
- A. Canada
  - B. Puerto Rico
  - C. Alaska
  - D. Hawaii

Correct answer: A

**29.** Which is TRUE of an occulting light?

- A. The periods of light and darkness are equal
- B. There is only a partial eclipse of the light
- C. The period of light exceeds the period of darkness
- D. The period of darkness exceeds the period of light

Correct answer: C

**30.** On 5 July, at 1200 zone time, you cross the 180th meridian steaming westward. What is your local time?

- A. It is 1200, 4 July.
- B. It is 1200, 5 July.
- C. It is 1200, 6 July.
- D. It is 2400, 6 July.

Correct answer: C

**31.** The initial great circle course angle between LAT 23°00'S, LONG 42°00'W and LAT 34°00'S, LONG 18°00'E is 063.8°. What is the true course?

- A. 063.8°T
- B. 296.2°T
- C. 243.8°T
- D. 116.2°T

Correct answer: D

**32.** Which is TRUE of a dead reckoning (DR) plot?

- A. It may be started at an assumed position
- B. It must be plotted using magnetic courses
- C. It is most useful when in sight of land
- D. It ignores the effect of surface currents

Correct answer: D

**33.** While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's foghorn 6 seconds after the signal was sounded. What is the distance to the shore?

- A. 1000 yards
- B. 1200 yards
- C. 1100 yards
- D. 900 yards

Correct answer: C

**34.** You sight a spar buoy with the topmark shown in illustration D027NG below. You must take which of the following actions?

- A. Pass to the east of the buoy
- B. Pass to the south of the buoy
- C. Pass to the north of the buoy
- D. Keep well clear of the buoy and pass on either side

Correct answer: D

- 35.** 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
  - B. One hour after
  - C. 30 minutes before flood, one hour after an ebb
  - D. At the predicted time

Correct answer: A

- 36.** The line of position determined from a sight with an observed altitude ( $H_o$ ) of  $88^{\circ}45.0'$  should be \_\_\_\_\_.
- A. plotted as an arc around the GP of the body
  - B. plotted by using an intercept from an assumed position
  - C. reduced to the meridian and plotted as a latitude line
  - D. calculated as a longitude line

Correct answer: A

- 37.** A great circle will intersect the equator at how many degrees of longitude apart?
- A.  $90^{\circ}$
  - B.  $180^{\circ}$
  - C.  $45^{\circ}$
  - D.  $0^{\circ}$

Correct answer: B

- 38.** You are plotting a running fix. The LOP to be run forward is an arc from a radar range, what technique should be used?
- A. The arc should be converted into a straight-line using offsets and then run forward.
  - B. An arc should never be run forward.
  - C. The position of the object observed should be advanced to the new time and a new arc swung using the radius of the old arc.
  - D. The distance between LOP's should be added to the radar range and a new arc swung.

Correct answer: C

- 39.** Which type of cloud is hail most likely to fall from?
- A. Cumulus
  - B. Nimbostratus
  - C. Cumulonimbus
  - D. Altocumulus

Correct answer: C

- 40.** While proceeding up a channel on course  $010^\circ$  per gyrocompass, you notice a pair of range lights in alignment with the masts of your vessel when viewed forward. A check of the chart shows the range to be  $009^\circ T$  and the variation to be  $15^\circ W$ . If the ship's course is  $026^\circ psc$ , what is the deviation for the present heading?
- A.  $2^\circ W$
  - B.  $2^\circ E$
  - C.  $1^\circ W$
  - D.  $1^\circ E$

Correct answer: A

- 41.** Your vessel has changed course and is heading  $285^\circ T$ , you are on the charted range, and it appears as in illustration D048NG.

After several minutes the range appears as in illustration D047NG and your heading is still  $285^\circ T$ . What does this indicate?

- A. A south-setting current
- B. A course made good to the left of the DR track
- C. A north-setting current
- D. Leeway caused by a NE'ly wind

Correct answer: C

- 42.** When would cloud formations be minimal?

- A. When the surface temperature and temperature aloft differ greatly
- B. When the relative humidity is very high
- C. When the surface temperature and temperature aloft are equal
- D. When the barometric pressure is very low

Correct answer: C

- 43.** Apparent altitude is sextant altitude corrected for \_\_\_\_\_.

- A. visibility and magnitude
- B. inaccuracies in the reading and reference level
- C. parallax and personal error
- D. All of the above are correct

Correct answer: B

- 44.** Which correction must be applied to an aneroid barometer reading?

- A. Height error
- B. Gravity error
- C. Temperature error
- D. English to metric conversion error

Correct answer: A

**45.** The dew point is reached when which condition occurs?

- A. The atmospheric pressure is 14.7 lbs. per square inch
- B. The relative humidity reaches 50%
- C. The temperature of the air equals the temperature of the seawater
- D. The air becomes saturated with water vapor

Correct answer: D

**46.** Which current is responsible for the movement of large quantities of ice into the North Atlantic shipping lanes?

- A. Baltic Current
- B. Iceland Current
- C. Labrador Current
- D. Baffin Current

Correct answer: C

**47.** Civil twilight starts at 1812 zone time on 26 August, your DR position at that time is LAT 21°06'S, LONG 14°56'W. Which statement concerning the planets available for evening sights is TRUE?

- A. Mars will be near the prime vertical in the eastern sky.
- B. Venus may be identified from Saturn and Jupiter because it is the brightest.
- C. A sight of either Jupiter, Saturn, or Venus will give a latitude line.
- D. Sights of Venus, Jupiter, and Saturn will yield a good three-line fix.

Correct answer: B

**48.** Under the IALA cardinal system, what does a mark with a quick white light showing 6 flashes followed by one long flash indicate in relation to the location of the safest water?

- A. Safe water is on the west side of the mark
- B. Safe water is on the south side of the mark
- C. Safe water is on the east side of the mark
- D. Safe water is on the north side of the mark

Correct answer: B

**49.** For a well-made and well-maintained sextant, the maximum value of which correction is usually so small that it can be ignored?

- A. Personal correction
- B. Phase
- C. Dip correction
- D. Instrument correction

Correct answer: D

**50.** When does the effects of priming of the tides occur?

- A. When the Earth, Moon, and Sun are lying approximately on the same line
- B. When the Moon is between new and first quarter and between full and third quarter
- C. When the Moon is between first quarter and full and between third quarter and new
- D. At times of new and full Moon

Correct answer: B

**51.** Under the IALA - A Buoyage System, a buoy used as a port hand mark would not show which light characteristic?

- A. Quick flashing
- B. Group Flashing (2 + 1)
- C. Isophase
- D. Long flashing

Correct answer: B

**52.** What causes deviation in a magnetic compass?

- A. The magnetic lines of force not coinciding with the lines of longitude
- B. A nearby magnetic land mass or mineral deposits
- C. The magnetic influence inherent to that particular vessel
- D. The changes in the earth's magnetic field

Correct answer: C

**53.** What does a white buoy with an open-faced orange diamond on it indicate?

- A. Danger
- B. Vessels are excluded from the area
- C. Operating restrictions are in effect
- D. The buoy is a mooring buoy

Correct answer: A

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

- A. Sighting a terrestrial range in line and comparing the observed bearing against the charted bearing
- B. 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°
- C. Comparing observed azimuths at different altitudes with computed values at the times of observation to see if the difference is constant
- D. 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

Correct answer: C

**55.** Which term is given to magnetism which is present only when the material is under the influence of an external field?

- A. Terrestrial magnetism
- B. Permanent magnetism
- C. Induced magnetism
- D. Residual magnetism

Correct answer: C

**56.** Which daymark has no lateral significance?

- A. Square; top half green and bottom half red
- B. Red triangle
- C. Green square
- D. Black and white diamond

Correct answer: D

**57.** On 25 December you observe the Sun's lower limb. The sextant altitude ( $h_s$ ) is  $4^{\circ}06.9'$ . The height of eye is 47-feet and the index error is 1.6' on the arc. The temperature is  $19^{\circ}\text{F}$  and the barometer reads 1030.8 millibars. What is the observed altitude ( $H_o$ )?

- A.  $3^{\circ}57.4'$
- B.  $4^{\circ}01.9'$
- C.  $4^{\circ}02.5'$
- D.  $4^{\circ}03.4'$

Correct answer: B

**58.** Your radar indicates a target; however, there is no visible object at the point indicated. A large mountain, approximately 50 miles away on the same bearing as the target, is breaking the horizon. You should suspect the radar target is caused by \_\_\_\_\_.

- A. sub-refraction
- B. a submerged submarine
- C. ducting
- D. ionospheric skip waves

Correct answer: C

59. You swung ship and compared the magnetic compass against the gyrocompass to find deviation. Gyro error is 2°W. The variation is 8°W. Find the deviation on a gyro heading of 058°.

NP-0119	
HEADING	
PSC	PGC
030.5°	024°
061.5°	054°
092.0°	084°
122.5°	114°
152.0°	144°
181.0°	174°
210.0°	204°
239.5°	234°
269.0°	264°
298.0°	294°
327.5°	324°
358.5°	354°

- A. 1.5°W
- B. 1.0°W
- C. 1.0°E
- D. 0.5°W

Correct answer: A

60. What weather change accompanies the passage of a cold front in the Northern Hemisphere?

- A. Steady dropping of barometric pressure
- B. Wind shift from northeast clockwise to southwest
- C. Steady precipitation, gradually increasing in intensity
- D. A line of cumulonimbus clouds

Correct answer: D

61. When do the prevailing westerlies of the Southern Hemisphere blow 17-27 knots?

- A. During the summer months only
- B. All year long
- C. During the winter only
- D. During spring only

Correct answer: B

62. Ascending and descending air masses with different temperatures is part of an important heat transmitting process in our atmosphere. Which term is given to this process?

- A. Barometric inversion
- B. Radiation
- C. Convection
- D. Conduction

Correct answer: C

**63.** Which describes the level of database information which cannot be removed from the ECDIS display and consists of information which is required at all times in all geographic areas and under all circumstances?

- A. System electronic nautical chart
- B. Chart display information
- C. Standard display information
- D. Display base information

Correct answer: D

**64.** You are on course 303°T. To check the speed of your vessel you should observe a celestial body on which bearing?

- A. 213°
- B. 123°
- C. 090°
- D. 000°

Correct answer: B

**65.** Which term is used to describe the speed at which an ocean wave system advances?

- A. Wavelength
- B. Ripple length
- C. Group velocity
- D. Wave velocity

Correct answer: C

**66.** What indicates the arrival of a hurricane within 24 to 36 hours?

- A. The barometer drops 2 millibars between 1000 and 1600
- B. The normal swell becoming lower and from a steady direction
- C. Unusually good weather with above average pressures followed by a slow fall of 4 millibars in six hours
- D. Long bands of nimbostratus clouds radiating from a point over the horizon

Correct answer: C

**67.** Which term is given to the points where the Sun is at 0° declination?

- A. Perigee
- B. Apogee
- C. Equinoxes
- D. Solstices

Correct answer: C

**68.** While steering a course of  $150^{\circ}\text{T}$ , you wish to observe the Sun for a speed check. What would the azimuth have to be?

- A.  $090^{\circ}\text{T}$
- B.  $240^{\circ}\text{T}$
- C.  $150^{\circ}\text{T}$
- D.  $060^{\circ}\text{T}$

Correct answer: C

**69.** What is the equivalent of 37 min. 32 sec. in arc units?

- A.  $4^{\circ}47'$
- B.  $6^{\circ}38'$
- C.  $9^{\circ}23'$
- D.  $7^{\circ}41'$

Correct answer: C

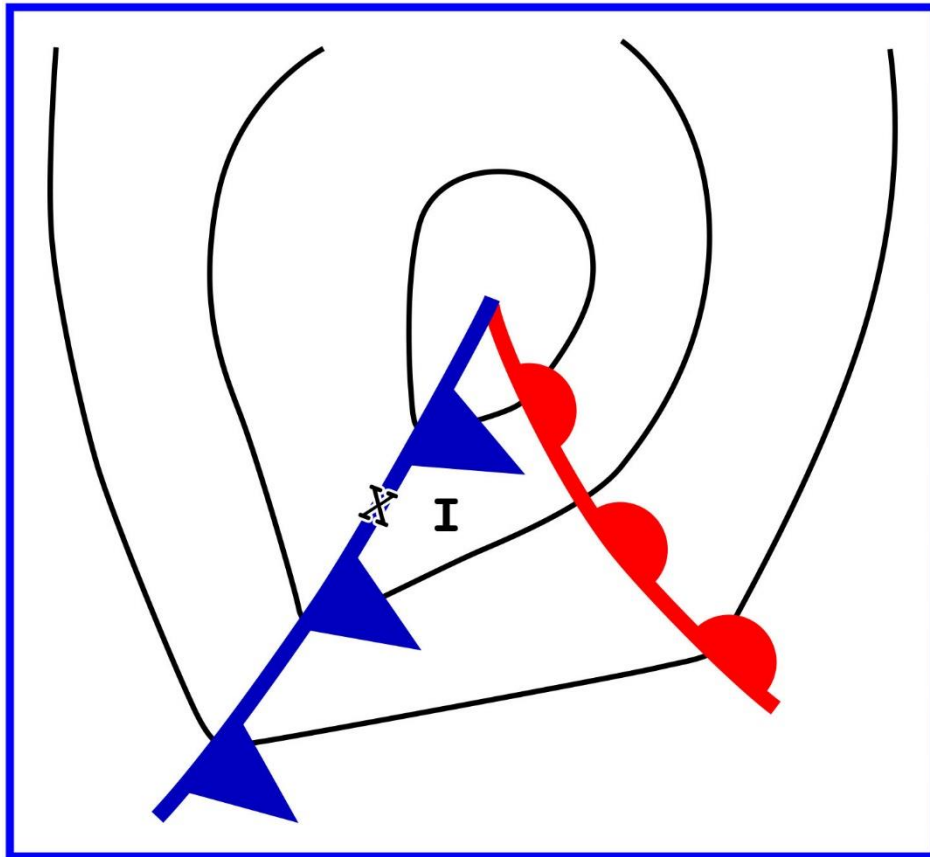
**70.** You are enroute to assist vessel A. Vessel A is underway at 5.5 knots on course  $033^{\circ}\text{T}$ , and bears  $284^{\circ}\text{T}$ , 43 miles from you. What is the time to intercept if you make 16 knots?

- A. 2h 16m
- B. 2h 22m
- C. 2h 32m
- D. 2h 42m

Correct answer: C

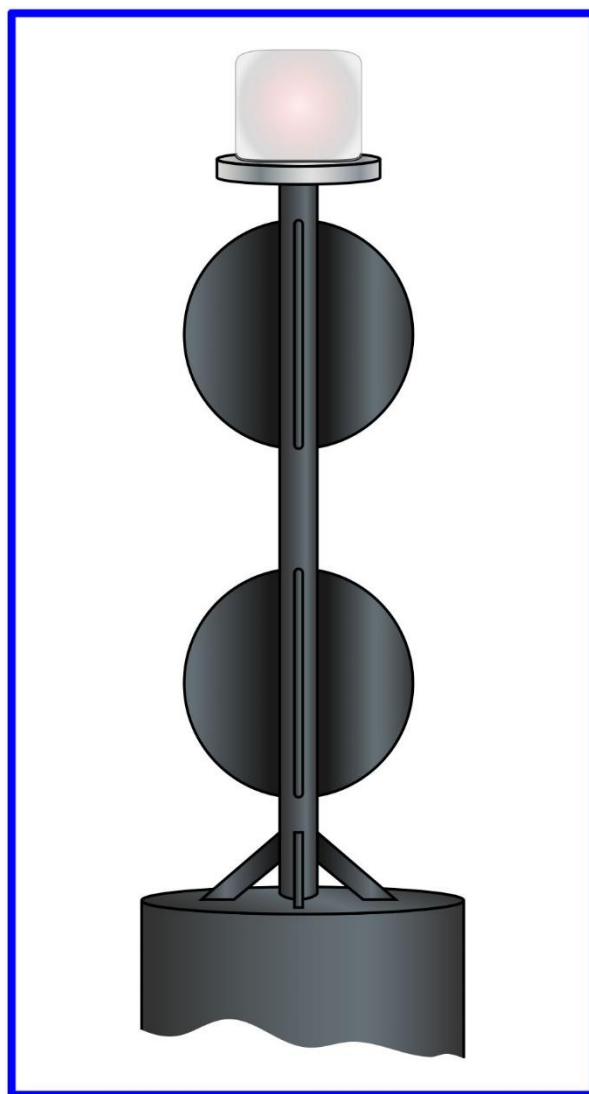


**D013NG**





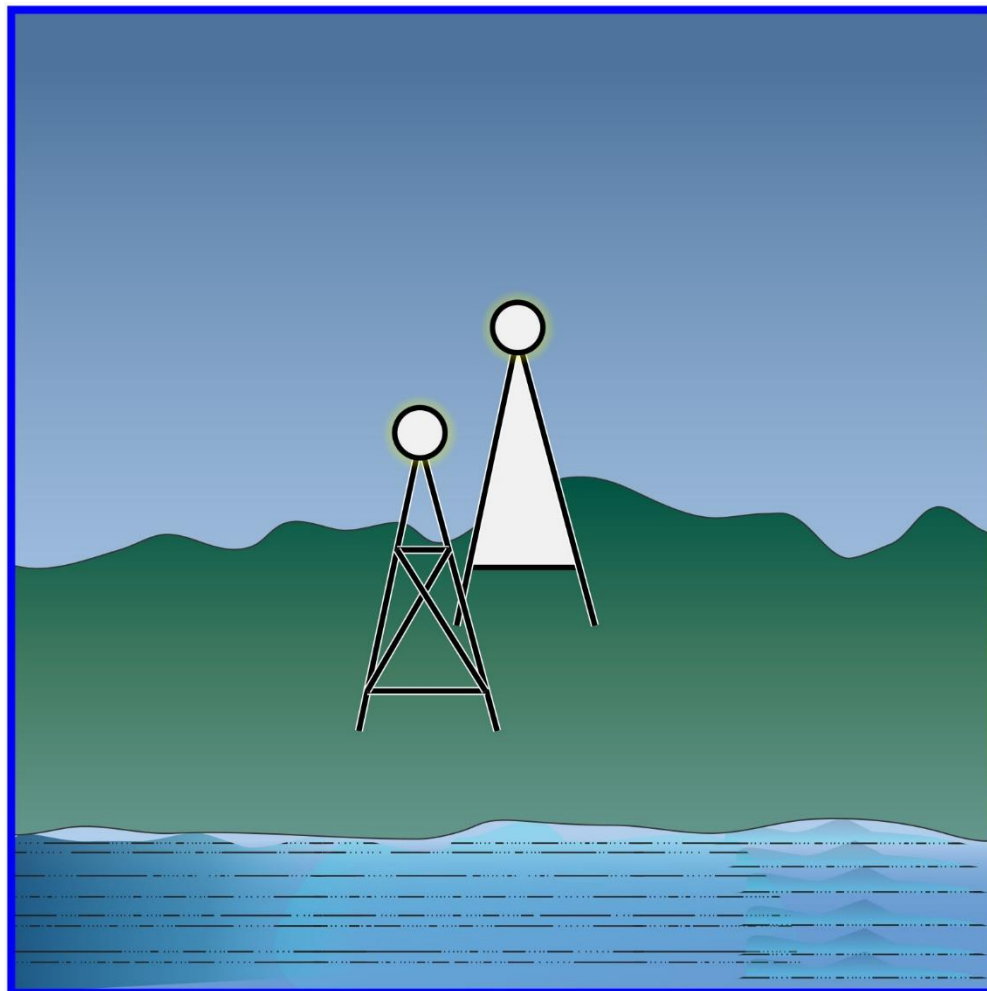
**D027NG**



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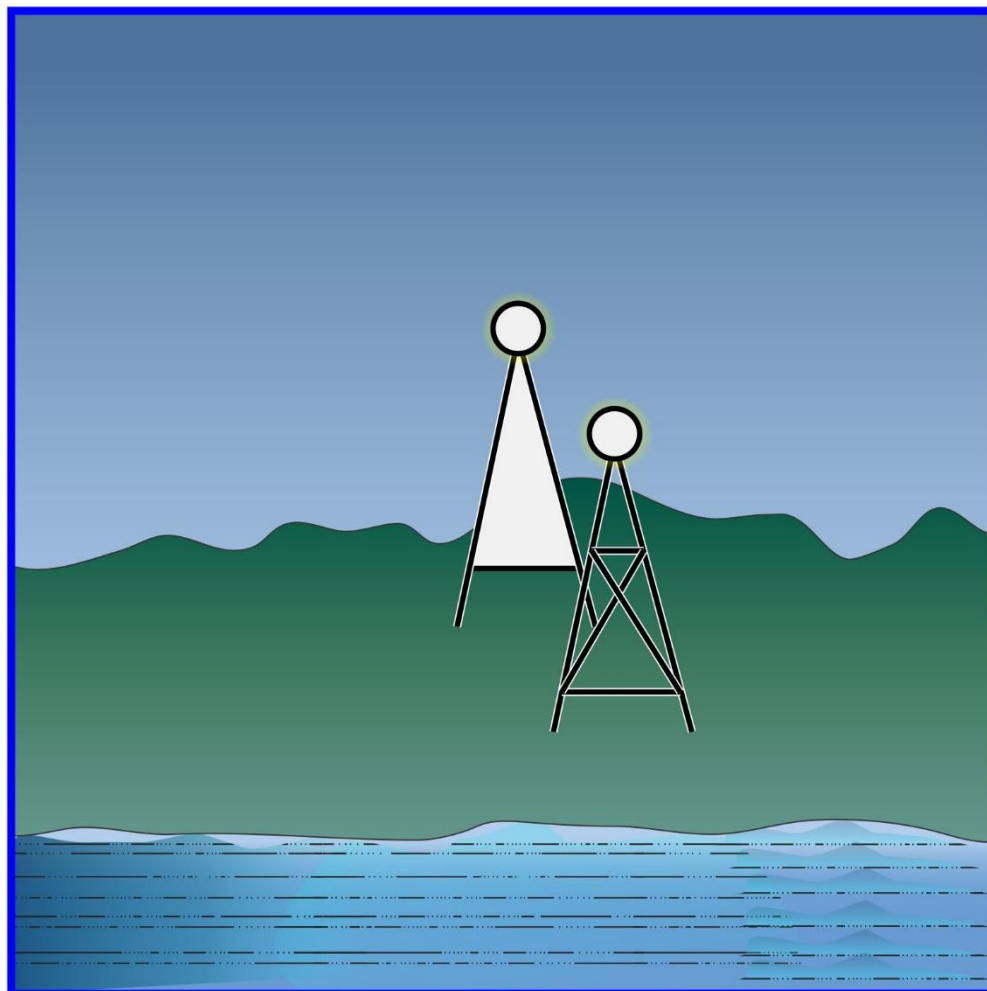
**D047NG**



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**D048NG**



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