

U.S.C.G. Merchant Marine Exam

Master or Mate Less than 200 Gross Registered Tons

Q154 Navigation Problems - Oceans

(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. A line of position from a celestial observation is a segment of a _____.
- (A) parallel of declination
 - (B) vertical circle
 - (C) circle of equal altitude
 - (D) parallel of altitude

If choice C is selected set score to 1.

2. At upper transit, if the zenith distance is 34° , the geographical distance from the observer to a body's GP is _____.
- (A) 510 miles
 - (B) 1220 miles
 - (C) 2040 miles
 - (D) 2260 miles

If choice C is selected set score to 1.

3. At 0600 zone time, on 16 March your DR position is LAT $20^\circ 10.0'N$, LONG $81^\circ 30.0'W$. You are steering course $300^\circ T$. The speed over the ground is 10 knots. You observed 3 morning sun lines. Determine the latitude and longitude of your 1130 running fix?

Zone Time	GHA	Observed Altitude	Declination
0800	$12^\circ 50.0'$	$19^\circ 00.0'$	S $01^\circ 38.8'$
1030	$50^\circ 20.4'$	$51^\circ 42.0'$	S $01^\circ 36.5'$
1130	$65^\circ 20.5'$	$62^\circ 11.5'$	S $01^\circ 35.5'$

- (A) LAT $20^\circ 42.5'N$, LONG $82^\circ 26.2'W$
- (B) LAT $20^\circ 39.0'N$, LONG $82^\circ 22.9'W$
- (C) LAT $20^\circ 32.0'N$, LONG $82^\circ 16.4'W$
- (D) LAT $20^\circ 28.5'N$, LONG $82^\circ 12.6'W$

If choice B is selected set score to 1.

4. The great circle distance from LAT $24^{\circ}25.3'N$, LONG $83^{\circ}02.6'W$ to LAT $35^{\circ}57.2'N$, LONG $5^{\circ}45.7'W$ is 3966.5 miles. Determine the latitude of the vertex.
- (A) $38^{\circ}46.2'N$
 - (B) $38^{\circ}16.4'N$
 - (C) $38^{\circ}09.4'N$
 - (D) $37^{\circ}57.3'N$

If choice C is selected set score to 1.

5. A vessel at LAT $32^{\circ}14.7'N$, LONG $66^{\circ}28.9'W$, heads for a destination at LAT $36^{\circ}58.7'N$, LONG $75^{\circ}42.2'W$. Determine the distance by Mercator sailing.
- (A) 300.2° miles
 - (B) 538.2° miles
 - (C) 241.2° miles
 - (D) 270.2° miles

If choice B is selected set score to 1.

6. On 16 July at 2000 zone time, you take a sextant observation of Polaris. Your vessel's DR position is LAT $27^{\circ}22.0' N$, LONG $148^{\circ}35.0' W$, and your sextant reads $26^{\circ}57.5'$. Your chronometer reads 05h 59m 16s, and your chronometer error is 01m 28s slow. Your height of eye is 48 feet, and the index error for your sextant is 1.3' off the arc. What is the latitude of your vessel from your observation of Polaris?
- (A) $26^{\circ}58.8'N$
 - (B) $27^{\circ}43.4'N$
 - (C) $27^{\circ}36.1'N$
 - (D) $26^{\circ}52.1'N$

If choice C is selected set score to 1.

7. On 12 September your 0600 zone time (ZT) fix gives you a position of LAT $22^{\circ}51.9'N$, LONG $133^{\circ}40.1'W$. Your vessel is on course $062^{\circ}T$, and your speed is 12.3 knots. Local apparent noon (LAN) occurs at 1142 ZT, at which time a meridian altitude of the Sun's upper limb is observed. The observed altitude (H_o) for this sight is $70^{\circ}33.2'$. What is the calculated latitude at LAN?
- (A) $23^{\circ}23.0'N$
 - (B) $23^{\circ}26.5'N$
 - (C) $23^{\circ}24.8'N$
 - (D) $23^{\circ}27.9'N$

If choice C is selected set score to 1.

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8. On 8 April your 0830 zone time DR position is LAT $22^{\circ}49.0'N$, LONG $84^{\circ}37.0'W$. Your vessel is on course $228^{\circ}T$ at a speed of 19.0 knots. What is the zone time of local apparent noon (LAN)?
- (A) 1147
 - (B) 1150
 - (C) 1154
 - (D) 1144

If choice D is selected set score to 1.

9. On 13 August your 0345 ZT DR position is LAT $21^{\circ}35.0'N$, LONG $135^{\circ}26.0'W$. You are on course $052^{\circ}T$ at a speed of 14 knots. What will be the zone time of sunrise at your vessel?
- (A) 0443
 - (B) 0540
 - (C) 0449
 - (D) 0536

If choice D is selected set score to 1.

10. You have steamed 746 miles at 14.0 knots, and consumed 152 tons of fuel. If you have 201 tons of usable fuel remaining, how far can you steam at 10 knots?
- (A) 2263 miles
 - (B) 1381 miles
 - (C) 1934 miles
 - (D) 2707 miles

If choice C is selected set score to 1.