1 747 Ref: Celestial, Definition, Aberration, Planet C
Planetary aberration is due, in part, to _____.
A. refraction of light as it enters the Earth's atmosphere
B. rotation of the Earth on it's axis
C. the body's orbital motion during the time required for its light to reach Earth
D. a false horizon

2 295 Ref: Celestial, Definition, Aphelion, Sun D
Aphelion is the point where the Sun _____.
A. and Moon and Earth form a right angle
B. and Moon and Earth are in line
C. crosses the celestial equator
D. is farthest from the Earth

3 1223 Ref: Celestial, Definition, Aphelion, Sun A
The Sun at a maximum declination north would be approximately at _____.
A. aphelion
B. perihelion
C. autumnal equinox
D. first point of Aries

4 1083 Ref: Celestial, Definition, Apogee, Moon B
The Moon is farthest from the Earth at _____.
A. the full Moon
B. apogee
C. the lunar solstice
D. quadrature

5 1370 Ref: Celestial, Definition, Apogee, Moon C
What condition exists at apogee?
A. The Earth is closest to the Sun.
B. The Moon is farthest from the Sun.
C. The Earth is farthest from the Moon.
D. The Moon is between the Earth and the Sun.

6 953 Ref: Celestial, Definition, Aries, Stars C
The first point of Aries is the point where the Sun is at _____.
A. maximum declination north
B. maximum declination south
C. 0° declination going to northerly declinations
D. 0° declination going to southerly declinations

7 954 Ref: Celestial, Definition, Aries, Stars A
The First Point of Aries is the position of the Sun on the celestial sphere on or about _____.
A. March 21
B. June 21
C. September 21
D. December 21

8 38 Ref: Celestial, Definition, Augmentation, Moon B
A correction for augmentation is included in the Nautical Almanac corrections for _____.
A. the Sun
B. the Moon
C. Venus
D. None of the above

9 1388 Ref: Celestial, Definition, Augmentation, Moon A
What happens because of augmentation?
A. The Moon appears larger as the elevation increases.
B. The Sun appears larger when viewed against the darker background of the horizon.
C. The horizon appears elevated when observing a bright Sun or Moon at low altitudes.
D. The Moon appears larger at the full Moon.

10 16 Ref: Celestial, Definition, Circumpolar, Cel Body D
A body can only be observed at lower transit when _____.
A. the declination is the opposite name to the latitude
B. the algebraic sum of the colatitudes and declination exceeds 90°
C. the observer is in high latitudes above either polar circle
D. the body is circumpolar

11 544 Ref: Celestial, Definition, Circumpolar, Cel Body A
In order for a star to be used for a sight at lower transit, the star must _____.
A. be circumpolar
B. have a declination equal to or greater than your latitude
C. have a GHA of 180°
D. have the SHA equal to or less than the LHA

12 627 Ref: Celestial, Definition, Conjunction, Planet B
Inferior conjunction is possible for _____.
A. Mars
B. Venus
C. Saturn
D. Jupiter

13 667 Ref: Celestial, Definition, Conjunction, Planet C
Mars will not be visible _____.
A. at elongation angles near 180°
B. from quadrature to opposition
C. at conjunction
D. at opposition

14 801 Ref: Celestial, Definition, Conjunction, Planet C
Superior conjunction occurs when _____.
A. the Sun is at maximum declination north or south
B. a planet crosses the external plane of the ecliptic
C. the Sun is between the Earth and a planet
D. two planets are in line

15 77 Ref: Celestial, Definition, Constellation, Astro C
A group of stars which appear close together and form a striking configuration such as a person or animal is a _____.
A. cluster
B. shower
C. constellation
D. galaxy

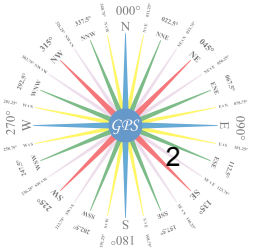
16 259 Ref: Celestial, Definition, Constellation, Stars C
Altair is found in what constellation?
A. Hercules
B. Cygnus
C. Aquila
D. Capricorn

17 293 Ref: Celestial, Definition, Constellation, Stars A
Antares is found in what constellation?
A. Scorpio
B. Corvus
C. Libra
D. Corona Borealis

18 346 Ref: Celestial, Definition, Constellation, Stars D
Bellatrix is found in what constellation?
A. Canis Minor
B. Gemini
C. Taurus
D. Orion

19 361 Ref: Celestial, Definition, Constellation, Stars B
Capella is found in what constellation?
A. Gemini
B. Auriga
C. Libra
D. Crab

20 400 Ref: Celestial, Definition, Constellation, Stars A
Deneb is found in what constellation?
A. Cygnus
B. Pegasus
C. Ursa Major
D. Andromeda



21 401 Ref: Celestial, Definition, Constellation, Stars B
Denebola is found in what constellation?
A. Hydrus
B. Leo
C. Centaurus
D. Aquila

22 446 Ref: Celestial, Definition, Constellation, Stars C
Fomalhaut is found in what constellation?
A. Leo
B. Taurus
C. Pisces
D. Canis Major

23 675 Ref: Celestial, Definition, Constellation, Stars D
Miaplacidus is found in what constellation?
A. Puppis
B. Hydrus
C. Centaurus
D. Carina

24 868 Ref: Celestial, Definition, Constellation, Stars C
The constellation that contains Polaris is _____.
A. Orion
B. Cassiopeia
C. Ursa Minor
D. Corona Borealis

25 869 Ref: Celestial, Definition, Constellation, Stars B
The constellation that contains the pointer stars is _____.
A. Orion
B. Ursa Major
C. the Southern Cross
D. Pegasus

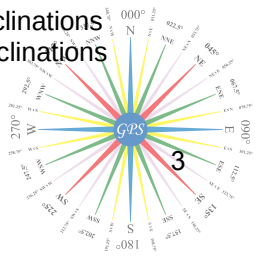
26 417 Ref: Celestial, Definition, Diurnal Aberration, Earth B
Diurnal aberration is due to _____.
A. motion of the Earth in its orbit
B. rotation of the Earth on its axis
C. the body's orbital motion during the time required for its light to reach the Earth
D. a false horizon

27 54 Ref: Celestial, Definition, Double Star, Astro B
A double star is a star that _____.
A. has a declination equal to twice that of the Sun
B. comprises two stars that appear close together
C. is twice as bright as a single star
D. suddenly becomes much brighter and then fades

28 939 Ref: Celestial, Definition, Ecliptic, Sun A
The ecliptic is _____.
A. the path the Sun appears to take among the stars
B. the path the Earth appears to take among the stars
C. a diagram of the zodiac
D. a great circle on a gnomonic chart

29 1118 Ref: Celestial, Definition, Ecliptic, Sun C
The path that the Sun appears to take among the stars is the _____.
A. zodiac
B. Tropic of Cancer in the Northern Hemisphere
C. ecliptic
D. line of apsides

30 830 Ref: Celestial, Definition, Equinoxes, Sun D
The autumnal equinox is the point where the Sun is at _____.
A. maximum declination north
B. maximum declination south
C. 0° declination going to northerly declinations
D. 0° declination going to southerly declinations



31 1138 Ref: Celestial, Definition, Equinoxes, Sun B
The points where the Sun is at 0° declination are known as _____.
A. solstices
B. equinoxes
C. perigee
D. apogee

32 86 Ref: Celestial, Definition, Galaxy, Astro D
A large group of stars revolving around a center is known as a _____.
A. cluster
B. shower
C. constellation
D. galaxy

33 1081 Ref: Celestial, Definition, Galaxy, Astro B
The Milky Way is an example of a _____.
A. cluster
B. galaxy
C. nova
D. nebula

34 1703 Ref: Celestial, Definition, Inferior, Planet B
Which is an inferior planet?
A. Mars
B. Venus
C. Neptune
D. Pluto

35 811 Ref: Celestial, Definition, Instrument, Azimuth Circle D
The accuracy of an azimuth circle can be checked by _____.
A. sighting a terrestrial range in line and comparing the observed bearing against the charted bearing
B. 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
C. 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°
D. comparing observed azimuths at different altitudes with computed values at the times of observation to see if the difference is constant

36 919 Ref: Celestial, Definition, Intercept, Sight Reduction C
The distance in miles between the circle of equal altitude for the observed altitude (Ho) and the circle of equal altitude for the computed altitude (Hc) is the _____.
A. equation of time
B. zenith distance
C. intercept
D. zenith angle

37 1009 Ref: Celestial, Definition, Jupiter, Planet C
The largest of the navigational planets is _____.
A. Mars
B. Venus
C. Jupiter
D. Saturn

38 894 Ref: Celestial, Definition, LHA, Sight Reduction B
The difference (measured in degrees) between the GHA of the body and the longitude of the observer is the _____.
A. right ascension
B. meridian angle
C. SHA of the observer
D. zenith distance

39 1086 Ref: Celestial, Definition, Libration, Moon B
The Moon is subject to four types of libration. Which of the following is NOT one of these types of libration?
A. Libration in longitude
B. Diurnal libration
C. Vertical libration
D. Libration in latitude

40 1087 Ref: Celestial, Definition, Libration, Moon D
The Moon is subject to four types of libration. Which of the following is NOT one of these types of libration?
A. Libration in latitude
B. Diurnal libration
C. Physical libration
D. Horizontal libration

41 101 Ref: Celestial, Definition, Lop, Sight Reduction A
A line of position from a celestial observation is a segment of a _____.
A. circle of equal altitude
B. parallel of declination
C. parallel of altitude
D. vertical circle

42 741 Ref: Celestial, Definition, Magnitude, Planet C
Other than the Sun and Moon, the brightest object in the sky is _____.
A. Sirius
B. Canopus
C. Venus
D. Jupiter

43 1428 Ref: Celestial, Definition, Magnitude, Planet D
What is the brightest navigational planet?
A. Saturn
B. Jupiter
C. Mars
D. Venus

44 58 Ref: Celestial, Definition, Magnitude, Stars A
A first magnitude star is _____.
A. 2.5 times as bright as a second magnitude star
B. 3 times as bright as a second magnitude star
C. 5 times as bright as a second magnitude star
D. 10 times as bright as a second magnitude star

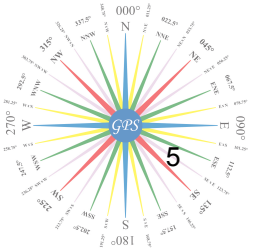
45 947 Ref: Celestial, Definition, Magnitude, Stars A
The expression "first magnitude" is usually used to refer only to bodies of magnitude _____.
A. 1.5 and greater
B. 1.25 and greater
C. 1.0 and greater
D. 0.5 and greater

46 1004 Ref: Celestial, Definition, Magnitude, Stars D
The immediate surroundings of what constellation contain the most first magnitude stars?
A. Libra
B. Cassiopeia
C. Pegasus
D. Orion

47 1071 Ref: Celestial, Definition, Magnitude, Stars A
The magnitude of three stars is indicated. Which star is the brightest?
A. Canopus - 0.9
B. Vega + 0.1
C. Antares + 1.2
D. Cannot be determined; magnitude indicates size not brightness

48 1072 Ref: Celestial, Definition, Magnitude, Stars C
The magnitude of three stars is indicated. Which star is the brightest?
A. Antares + 1.2
B. Altair + 0.9
C. Vega + 0.1
D. Cannot be determined; magnitude indicates size not brightness

49 1218 Ref: Celestial, Definition, Magnitude, Stars B
The star lists in the Nautical Almanac are based on which of the following magnitudes?
A. First
B. Third
C. Sixth
D. Tenth



50 1303 Ref: Celestial, Definition, Magnitude, Stars D
Under ideal viewing conditions, the dimmest star that can be seen with the unaided eye is of what magnitude?
A. First
B. Third
C. Fourth
D. Sixth

51 1093 Ref: Celestial, Definition, Nadir, Sight Reduction D
The nadir is the point on the celestial sphere that is _____.
A. 90° away from the zenith
B. over Greenwich
C. on the western horizon
D. directly below the observer

52 184 Ref: Celestial, Definition, Nova, Astro C
A star that suddenly becomes several magnitudes brighter and then gradually fades is a _____.
A. double star
B. variable star
C. nova
D. nebula

53 740 Ref: Celestial, Definition, Opposition, Planet D
Opposition occurs when _____.
A. the Sun, Earth, and Moon are at right angles
B. the Sun's declination is 0° and is moving south
C. an inferior planet is at the maximum angle to the line of sight to the Sun
D. the Earth is between a planet and the Sun

54 1500 Ref: Celestial, Definition, Parallax, Earth B
What sextant correction corrects the apparent altitude to the equivalent reading at the center of the Earth?
A. Phase
B. Parallax
C. Semidiameter
D. Augmentation

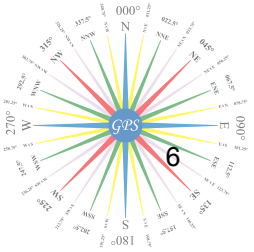
55 1085 Ref: Celestial, Definition, Perigee, Moon A
The Moon is nearest to the Earth at _____.
A. perigee
B. the vernal equinox
C. the new Moon
D. the full Moon

56 1371 Ref: Celestial, Definition, Perigee, Moon D
What condition exists at perigee?
A. The Earth is farthest from the Sun.
B. The Earth, Sun, and Moon are in line.
C. The Earth, Sun, and Moon are at right angles.
D. The Moon is closest to the Earth.

57 742 Ref: Celestial, Definition, Perihelion, Sun A
Perihelion is the point where the Sun _____.
A. is nearest to the Earth
B. is farthest from the Earth
C. is on the opposite side of the Earth from the Moon
D. and Moon and Earth are in line

58 1224 Ref: Celestial, Definition, Perihelion, Sun D
The Sun is closest to the Earth in what month?
A. October
B. July
C. April
D. January

59 534 Ref: Celestial, Definition, Phase, Moon D
In low latitudes, a last quarter moon will always rise at about _____.
A. sunrise
B. 1200 LMT
C. sunset
D. 2400 LMT



60 535 Ref: Celestial, Definition, Phase, Moon C
In low latitudes, the full Moon will always rise at about _____.
A. sunrise
B. 1200 LMT
C. sunset
D. 2400 LMT

61 666 Ref: Celestial, Definition, Phase, Planet A
Mars is only seen at two phases, one of which _____.
A. is the full phase
B. is conjunction
C. occurs only at sunset or sunrise
D. occurs at or near 0° elongation

62 580 Ref: Celestial, Definition, Planets, Planet B
In the Nautical Almanac provided, when would Jupiter and Saturn be visible in temperate latitudes for both evening and morning stars?
A. 10 January
B. 27 March
C. 22 June
D. 8 October

63 1143 Ref: Celestial, Definition, Precession, Stars B
The precession of the equinoxes occurs in a(n) _____.
A. easterly direction
B. westerly direction
C. northerly direction
D. southerly direction

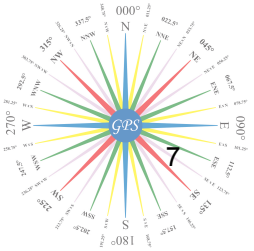
64 1144 Ref: Celestial, Definition, Precession, Stars D
The precession of the equinoxes of the Earth is _____.
A. the gradual increase in the period of rotation caused by the effects of the Moon
B. the irregularity of the Earth's orbit caused by influences of the Sun and Moon
C. caused by the elliptical shape of the Earth's orbit
D. similar to a top spinning with its axis tilted

65 502 Ref: Celestial, Definition, RA, Cel Body A
If the right ascension of a body is 9 hours, it also _____.
A. is 135°
B. corresponds to an SHA for the body of 45°
C. means that the GP of the body is in the western hemisphere
D. All of the above

66 767 Ref: Celestial, Definition, RA, Cel Body D
Right ascension is primarily used by the navigator for _____.
A. calculating amplitudes
B. calculating great circle sailings by the Ageton method
C. entering the Air Navigation Tables (Selected Stars) Pub 249
D. plotting on star finders

67 966 Ref: Celestial, Definition, RA, Cel Body B
The GHA of the first point of Aries is 315° and the GHA of a planet is 150°. What is the right ascension of the planet?
A. 7 hours
B. 11 hours
C. 19 hours
D. 23 hours

68 815 Ref: Celestial, Definition, RA, Stars B
The angle measured eastward from the vernal equinox along the celestial equator often expressed in time units is the _____.
A. Greenwich sidereal time
B. right ascension
C. local sidereal time
D. sidereal hour angle



69 766 Ref: Celestial, Definition, Retrograde, Planet B
Retrograde motion is the _____.
A. movement of the points of intersection of the planes of the ecliptic and the equator
B. apparent westerly motion of a planet with respect to stars
C. movement of a superior planet in its orbit about the Sun
D. movement of the celestial north pole in an elliptical pattern in space

70 3 Ref: Celestial, Definition, Revolution, Cel Body C
"Revolution" is the _____.
A. wobbling of the Earth about its axis
B. motion of bodies in the solar system relative to the stars
C. motion of a celestial body in its orbit
D. spinning of a celestial body about its axis

71 25 Ref: Celestial, Definition, Revolution, Cel Body B
A celestial body's complete orbit around another body is _____.
A. a rotation
B. a revolution
C. space motion
D. nutation

72 1122 Ref: Celestial, Definition, Revolution, Moon B
The period of revolution of the Moon is _____.
A. 24 hours
B. about 27.3 days
C. 365 days
D. about 19 years

73 533 Ref: Celestial, Definition, Rise, Moon B
In low latitudes, a first quarter Moon will always rise at about _____.
A. sunrise
B. 1200 LMT
C. sunset
D. 2400 LMT

74 538 Ref: Celestial, Definition, Rise, Moon A
In low latitudes, the new Moon will always rise at about _____.
A. sunrise
B. 1200 LMT
C. sunset
D. 2400 LMT

75 4 Ref: Celestial, Definition, Rotation, Cel Body D
"Rotation" is the _____.
A. wobbling of the Earth about its axis
B. motion of bodies in the solar system relative to the stars
C. motion of a celestial body in its orbit
D. spinning of a celestial body about its axis

76 1209 Ref: Celestial, Definition, Rotation, Cel Body B
The spinning motion of a planet around its axis is called _____.
A. revolution
B. rotation
C. orbit
D. space motion

77 1210 Ref: Celestial, Definition, Rotation, Cel Body A
The spinning of a celestial body about its axis is known as _____.
A. rotation
B. revolution
C. space motion
D. nutation

78 1123 Ref: Celestial, Definition, Rotation, Moon C
The period of rotation of the Moon on its axis is _____.
A. about 19 years
B. 365 days
C. about 27.3 days
D. 24 hours

79 777 Ref: Celestial, Definition, SHA, Stars D
Sidereal hour angle is always _____.
A. measured westward from the hour circle containing the first point of Aries
B. measured from the point on the celestial sphere occupied by the Sun at the vernal equinox
C. subtracted from the LHA of the star to obtain the LHA of Aries
D. All of the above

80 817 Ref: Celestial, Definition, SHA, Stars C
The angle that is measured westward from the first point of Aries to the hour circle of the body along the celestial equator is the _____.
A. Greenwich sidereal angle
B. local sidereal time
C. sidereal hour angle
D. azimuth angle

81 845 Ref: Celestial, Definition, SHA, Stars C
The celestial coordinate of a star that is relatively constant in value is the _____.
A. Greenwich hour angle
B. local hour angle
C. sidereal hour angle
D. meridian angle

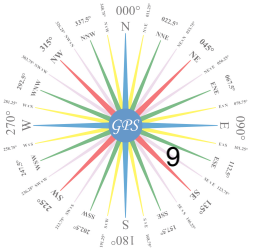
82 1073 Ref: Celestial, Definition, Sights, Moon B
The major problem with Moon sights is the _____.
A. rapid changes in GHA and declination introduce errors into the calculations
B. lack of a well defined limb during certain phases and positions in the sky
C. approximations used in the solution caused by the variable horizontal parallax
D. augmentation effect caused by the relatively short distance to the Moon

83 1135 Ref: Celestial, Definition, Solstice, Sun D
The point where the Sun is at maximum declination north or south is _____.
A. aphelion
B. perihelion
C. an equinox
D. a solstice

84 1222 Ref: Celestial, Definition, Solstice, Sun A
The summer solstice is the point where the Sun is at _____.
A. maximum declination north
B. maximum declination south
C. 0° declination going to northerly declinations
D. 0° declination going to southerly declinations

85 1281 Ref: Celestial, Definition, Solstice, Sun B
The winter solstice is the point where the Sun is at _____.
A. maximum declination north
B. maximum declination south
C. 0° declination going to northerly declinations
D. 0° declination going to southerly declinations

86 1668 Ref: Celestial, Definition, Solstice, Sun C
Which condition exists at the summer solstice in the Northern Hemisphere?
A. The north polar regions are in continual darkness.
B. The Northern Hemisphere is having short days and long nights.
C. The Southern Hemisphere is having winter.
D. The Sun shines equally on both hemispheres.



87 5 Ref: Celestial, Definition, Space Motion, Cel Body B
"Space motion" is the _____.
A. action causing precession of the equinoxes
B. motion of a body in the solar system relative to the stars
C. motion of a celestial body in its orbit
D. irregularity in the motion of the Earth caused by other celestial bodies

88 1091 Ref: Celestial, Definition, Space Motion, Cel Body A
The motion of celestial bodies relative to other celestial bodies is known as _____.
A. space motion
B. apparent motion
C. diurnal motion
D. actual motion

89 1607 Ref: Celestial, Definition, Tidal Currents, Moon A
When the declination of the Moon is 0°12.5'S, you can expect some tidal currents in Gulf Coast ports to _____.
A. become weak and variable
B. exceed the predicted velocities
C. become reversing currents
D. have either a double ebb or a double flood

90 196 Ref: Celestial, Definition, Time Diagram, Earth B
A time diagram is a diagram on the plane of the _____.
A. celestial meridian
B. celestial equator
C. celestial horizon
D. principal vertical circle

91 206 Ref: Celestial, Definition, Variable Star, Astro A
A variable star is one that _____.
A. exhibits a change in magnitude
B. has a changing declination
C. is increasing in SHA
D. is also known as a red giant

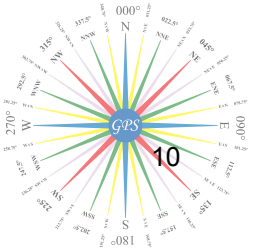
92 1132 Ref: Celestial, Definition, Venus, Planet A
The planet Venus can be observed in the morning before sunrise if it is well to the _____.
A. west of and higher than the Sun
B. west of and lower than the Sun
C. east of and higher than the Sun
D. east of and lower than the Sun

93 1367 Ref: Celestial, Definition, Venus, Planet D
What celestial body may sometimes be observed in daylight?
A. New Moon
B. Saturn
C. Sirius
D. Venus

94 1082 Ref: Celestial, Definition B
The Moon and Sun are in line over your meridian. Tomorrow when the Sun is over your meridian, the Moon will be _____.
A. over the meridian too
B. about 12°East of the meridian
C. about 6°West of the meridian
D. about 11° west of the meridian

95 1105 Ref: Celestial, Definition C
The new Moon cannot be seen because the Moon is _____.
A. in the opposite direction of the Sun
B. below the horizon
C. between the Earth and the Sun
D. at quadrature

96 1342 Ref: Celestial, Definition B
Upper limb observations of the Moon are used more frequently than those of the Sun because of the location of the Moon in the sky and the _____.
A. lesser distance between the Earth and the Moon
B. phase of the Moon
C. rapid change in declination of the Moon
D. effects of augmentation and horizontal parallax



97 1465 Ref: Celestial, Definitions, High Altitude, Cel Body B
What is the major advantage of high altitude observations?
A. Errors due to unusual parallax are eliminated.
B. The same body can be used for a fix from observations separated by several minutes.
C. The declination is the only information needed from the almanac.
D. The semidiameter correction of the sextant altitude is eliminated.

98 1467 Ref: Celestial, Definitions, High Altitude, Cel Body D
What is the major problem with taking high altitude sun observations?
A. Possible errors due to unusual refraction may exist.
B. The tables are not as accurate due to inherent errors in the spherical triangle at high altitudes.
C. Rapidly changing altitudes make it difficult to get an accurate altitude.
D. It is difficult to establish the point where the sextant is vertical to the horizon.

99 1842 Ref: Celestial, Definitions, Low, Sun A
Why are low altitude sun sights not generally used?
A. Errors due to unusual refraction may exist.
B. Sextants may have large errors at small angles of elevation.
C. Modern sight reduction tables are not complete for low altitudes below 5°.
D. The glare on the horizon causes irradiation errors.

100 323 Ref: Celestial, Definitions, Quadrant, Stars D
At evening stars, the first stars that should be observed are those with an azimuth in what quadrant?
A. Southern C. Northern
B. Western D. Eastern

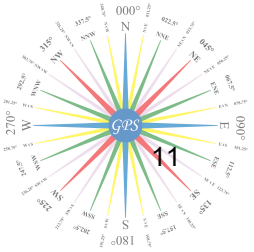
101 324 Ref: Celestial, Definitions, Quadrant, Stars B
At evening stars, the last stars that should be observed are those with an azimuth in what quadrant?
A. Southern C. Northern
B. Western D. Eastern

102 328 Ref: Celestial, Definitions, Quadrant, Stars A
At morning stars, the first stars that should be observed are those with an azimuth in which quadrant?
A. Eastern C. Western
B. Southern D. Northern

103 329 Ref: Celestial, Definitions, Quadrant, Stars C
At morning stars, the last stars that should be observed are those with an azimuth in which quadrant?
A. Eastern C. Western
B. Southern D. Northern

104 1606 Ref: Celestial, Definitions, Quadrant, Stars A
When taking stars, those bodies to the east and west will _____.
A. change altitude rapidly
B. change altitude slowly
C. remain in an almost fixed position
D. appear to be moving in the plane of the horizon

105 264 Ref: Celestial, Observation, Amplitude, Visible D
An amplitude of the Sun in high latitudes _____.
A. is most accurate before sunrise
B. is most accurate after sunset
C. should only be observed when the Sun's lower limb is above the horizon
D. is most accurate when the Sun's center is observed on the visible horizon



106 1605 Ref: Celestial, Observation, Amplitude, Visible A
When taking an amplitude, the Sun's center should be observed on the visible horizon when _____.
A. in high latitudes
B. the Sun is near or at a solstice
C. the declination is of a different name from the latitude
D. the Sun's declination is at or near 0°

107 1156 Ref: Celestial, Observation, Amplitude C
The prime vertical is the reference point from which the angle of which type of observation is measured?
A. Sextant angle
B. Azimuth
C. Amplitude
D. Local apparent noon

108 816 Ref: Celestial, Observation, Azimuth, Angle B
The angle measured from the observer's meridian, clockwise or counterclockwise up to 180°, to the vertical circle of the body is the _____.
A. local hour angle
B. azimuth angle
C. meridian angle
D. observer's longitude

109 1938 Ref: Celestial, Observation, Azimuth, Course B
You are on course 042°T. To check the course of your vessel you should observe a celestial body on which bearing?
A. 090°
B. 132°
C. 180°
D. 222°

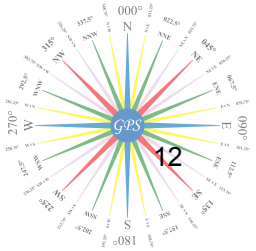
110 1948 Ref: Celestial, Observation, Azimuth, Course C
You are on course 238°T. To check the course of your vessel you should observe a celestial body on which bearing?
A. 180°
B. 238°
C. 328°
D. 090°

111 1831 Ref: Celestial, Observation, Azimuth, Latitude A
While steering a course of 150°T, you wish to observe a body for a latitude check. What would the azimuth have to be?
A. 000°T
B. 090°T
C. 150°T
D. 240°T

112 1941 Ref: Celestial, Observation, Azimuth, Latitude D
You are on course 138°T. To check the latitude of your vessel you should observe a celestial body on which bearing?
A. 138°
B. 270°
C. 318°
D. 000°

113 1947 Ref: Celestial, Observation, Azimuth, Latitude C
You are on course 226°T. In order to check the latitude of your vessel, you should observe a celestial body on which bearing?
A. 226°
B. 270°
C. 000°
D. 026°

114 1939 Ref: Celestial, Observation, Azimuth, Longitude A
You are on course 061°T. To check the longitude of your vessel you should observe a celestial body on which bearing?
A. 090°
B. 180°
C. 241°
D. 061°



115 1945 Ref: Celestial, Observation, Azimuth, Longitude B
You are on course 209°T. In order to check the longitude of your vessel, you should observe a celestial body on which bearing?
A. 209°
B. 270°
C. 299°
D. 000°

116 1577 Ref: Celestial, Observation, Azimuth, Polaris B
When determining compass error by an azimuth of Polaris, you enter the Nautical Almanac with the _____.
A. GHA Aries
B. LHA Aries
C. LHA Polaris
D. GHA Polaris

117 1832 Ref: Celestial, Observation, Azimuth, Speed C
While steering a course of 150°T, you wish to observe the Sun for a speed check. What would the azimuth have to be?
A. 060°T
B. 090°T
C. 150°T
D. 240°T

118 1942 Ref: Celestial, Observation, Azimuth, Speed D
You are on course 146°T. To check the speed of your vessel you should observe a celestial body on which bearing?
A. 000°
B. 056°
C. 090°
D. 146°

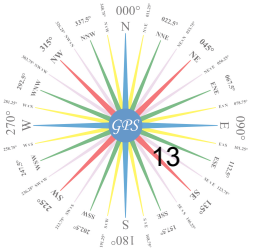
119 1944 Ref: Celestial, Observation, Azimuth, Speed D
You are on course 201°T. To check the speed of your vessel you should observe a celestial body on which bearing?
A. 090°
B. 111°
C. 180°
D. 201°

120 1950 Ref: Celestial, Observation, Azimuth, Speed C
You are on course 303°T. To check the speed of your vessel you should observe a celestial body on which bearing?
A. 000°
B. 090°
C. 123°
D. 213°

121 1951 Ref: Celestial, Observation, Azimuth, Speed A
You are on course 312°T. To check the speed of your vessel you should observe a celestial body on which bearing?
A. 312°
B. 000°
C. 090°
D. 222°

122 88 Ref: Celestial, Observation, LAN, Latitude C
A latitude line will be obtained by observing a body _____.
A. on the prime vertical
B. on the celestial horizon
C. at lower transit
D. on the Greenwich meridian

123 183 Ref: Celestial, Observation, LAN, Latitude B
A star is observed at lower transit. The line of position derived from this sight is _____.
A. on the prime vertical
B. a latitude line
C. a longitude line
D. of no special significance



124 1056 Ref: Celestial, Observation, LAN, LMT C
The LMT of LAN is 1210. Your longitude is 70°30'E. Which time would you use to enter the Nautical Almanac to determine the declination of the Sun at LAN?
A. 1842
B. 1652
C. 0728
D. 0652

125 1058 Ref: Celestial, Observation, LAN, LMT A
The Local mean time of LAN is 1152. Your longitude is 73°15'E. What time would you use to enter the Nautical Almanac to determine the declination of the Sun at LAN?
A. 0659
B. 0652
C. 1859
D. 1852

126 1154 Ref: Celestial, Observation, LAN, LMT D
The primary use of apparent time in marine navigation is to _____.
A. calculate sunrise or sunset
B. determine zone time
C. enter an almanac
D. determine the time of meridian transit

127 460 Ref: Celestial, Observation, LAN D
Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN ?
A. C 018°T, Sp 6 knots
B. C 079°T, Sp 24 knots
C. C 101°T, Sp 7 knots
D. C 349°T, Sp 25 knots

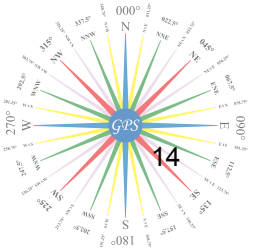
128 461 Ref: Celestial, Observation, LAN B
Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN?
A. C 356°T, Sp 5.5 knots
B. C 162°T, Sp 27 knots
C. C 095°T, Sp 30 knots
D. C 268°T, Sp 22 knots

129 462 Ref: Celestial, Observation, LAN C
Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN?
A. C 356°T, Sp 5 knots
B. C 099°T, Sp 17 knots
C. C 192°T, Sp 23 knots
D. C 278°T, Sp 6 knots

130 463 Ref: Celestial, Observation, LAN A
Given are the courses and speeds of 4 vessels. The navigator of which vessel would be required to know the actual time of meridian transit in order to take an accurate observation at LAN?
A. C 166°T, Sp 24 knots
B. C 013°T, Sp 7 knots
C. C 291°T, Sp 25 knots
D. C 112°T, Sp 4 knots

131 813 Ref: Celestial, Observation, LAN D
The altitude at LAN may be observed by starting several minutes in advance and continuing until a maximum altitude occurs. This procedure should not be used _____.
A. when the declination and latitude are of different names
B. when the declination is greater than and the same name as the latitude
C. if the vessel is stopped or making bare steerageway
D. on a fast vessel on northerly or southerly headings

132 372 Ref: Celestial, Observation, Twilight, Civil A
Civil twilight begins at 1910 zone time on 20 July. Your DR position at that time is LAT 22°16'N, LONG 150°06'W. Which statement concerning the planets available for evening sights is TRUE?
A. Venus will have a westerly meridian angle.
B. Mars will set about one hour after the Sun sets.
C. Mars, Venus, Jupiter, and Saturn will be above the horizon.
D. Sights of Saturn, Jupiter, and Venus will yield a good three-line-of-position fix.



133 373 Ref: Celestial, Observation, Twilight, Civil A
Civil twilight occurs at 0558 zone time on 30 December. Your DR position at that time is LAT 15°02'N, LONG 46°02'W. Which statement concerning the planets available for morning sights is TRUE?
A. At 0558, Mars can be used for an ex-meridian observation.
B. Venus, Jupiter, and Mars sights will yield a good three line fix.
C. Saturn will be near the prime vertical.
D. Venus will be visible low in the western sky.

134 374 Ref: Celestial, Observation, Twilight, Civil B
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. Sights of Venus, Jupiter, and Saturn will yield a good three line fix.
D. A sight of either Jupiter, Saturn, or Venus will give a latitude line.

135 530 Ref: Celestial, Observation, Twilight, Civil B
In general, the most effective period for observing stars and planets occurs during the darker limit of ___.
A. sunset
B. civil twilight
C. nautical twilight
D. astronomical twilight

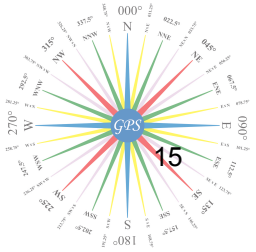
136 1628 Ref: Celestial, Sextant, Characteristic, Horizontal Sextant Angle D
When using horizontal sextant angles of three objects to fix your position, an indeterminate position will result in which situation?
A. The objects lie in a straight line.
B. The vessel is inside of a triangle formed by the objects.
C. The vessel is outside of a triangle formed by the objects.
D. A circle will pass through your position and the three objects.

137 343 Ref: Celestial, Sextant, Characteristic, Reflecting Property B
Because of the reflecting properties of a sextant, if the sextant altitude reads 60° on the limb, the actual arc of the limb from 0° to the 60° reading is _____.
A. 20°
B. 30°
C. 40°
D. 60°

138 1609 Ref: Celestial, Sextant, Characteristic, Reflecting Property D
When the index and horizon mirrors of a properly adjusted sextant are at an angle of 45° to each other, the arc reads _____.
A. 22 1/2°
B. 45°
C. 60°
D. 90°

139 531 Ref: Celestial, Sextant, Correction, Dip B
In high latitudes, celestial observations can be made over a horizon covered with pack ice by bringing the sun tangent to the ice and _____.
A. adding 30° of arc to the sight
B. using a dip correction based on the height of eye above the ice
C. doubling the semidiameter correction
D. using a dip correction from table 22 in Bowditch Vol II

140 1569 Ref: Celestial, Sextant, Correction, Ha To Ho D
When correcting apparent altitude to observed altitude, you do NOT apply a correction for _____.
A. the equivalent reading to the center of the body
B. the equivalent reading from the center of the Earth
C. the bending of the rays of light from the body
D. inaccuracies in the reference level



141 296 Ref: Celestial, Sextant, Correction, Hs To Ha B
Apparent altitude is sextant altitude corrected for _____.
A. parallax and personal error
B. inaccuracies in the reading and reference level
C. visibility and magnitude
D. All of the above are correct

142 1570 Ref: Celestial, Sextant, Correction, Hs To Ha A
When correcting the sextant altitude to apparent altitude you are correcting for inaccuracies in the reading and _____.
A. for inaccuracies in the reference level
B. the equivalent reading at the center of the body
C. the equivalent reading from the center of the Earth
D. the bending of the rays of light from the body

143 1571 Ref: Celestial, Sextant, Correction, Hs To Ha C
When correcting the sextant altitude to apparent altitude you are correcting for inaccuracies in the reference level and _____.
A. the equivalent reading to the center of the body
B. the equivalent reading from the center of the Earth
C. for inaccuracies in the instrument
D. the bending of the rays of light from the body

144 872 Ref: Celestial, Sextant, Correction, IC A
The correction tables in the Nautical Almanac for use with Moon sights do NOT include the effects of _____.
A. instrument error
B. augmentation
C. semidiameter
D. parallax

145 871 Ref: Celestial, Sextant, Correction, Irradiation D
The correction tables in the front of the Nautical Almanac for use with sun sights do NOT include the effects of _____.
A. mean refraction
B. parallax
C. semidiameter
D. irradiation

146 125 Ref: Celestial, Sextant, Correction, Parallax A
A parallax correction is NOT applied to observations of the _____.
A. stars
B. Moon
C. Sun
D. Planets

147 128 Ref: Celestial, Sextant, Correction, Phase D
A phase correction may be applicable to correct the sextant altitude correction of _____.
A. any star
B. the Sun
C. third magnitude stars only
D. some planets

148 1128 Ref: Celestial, Sextant, Correction, Phase B
The phase correction should be applied to sights of Venus and Mars _____.
A. during day time observations only
B. during twilight observations only
C. at all times
D. when observed at altitudes of less than 25°

149 127 Ref: Celestial, Sextant, Correction, Phase Corr C
A phase correction is applied to observations of _____.
A. the Sun
B. stars
C. planets
D. All of the above

150 344 Ref: Celestial, Sextant, Correction, Phase Corr A
Because the actual center of some planets may differ from the observed center, the navigator applies a correction known as the _____.
A. phase correction
B. refraction correction
C. semidiameter correction
D. augmentation correction

151 313 Ref: Celestial, Sextant, Correction, Refraction C
Astronomical refraction causes a celestial body to appear _____.
A. to the left of its position in the Northern Hemisphere and to the right in the Southern Hemisphere
B. to the right of its position in the Northern Hemisphere and to the left in the Southern Hemisphere
C. higher than its actual position
D. lower than its actual position

152 946 Ref: Celestial, Sextant, Correction, Refraction B
The error in a sextant altitude caused by refraction is greatest when the celestial body is _____.
A. high in the sky
B. near the horizon
C. rising
D. at or near transit

153 161 Ref: Celestial, Sextant, Correction, SD B
A semidiameter correction is applied to observations of _____.
A. Mars
B. the Moon
C. Jupiter
D. All of the above

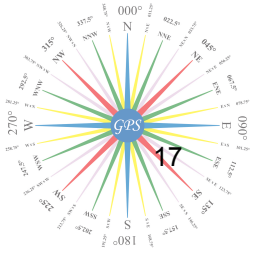
154 893 Ref: Celestial, Sextant, Correction, SD C
The diameter of the Sun and Moon as seen from the Earth varies slightly but averages about _____.
A. 1'
B. 52'
C. 32'
D. 15.5'

155 1644 Ref: Celestial, Sextant, Correction, SD D
Where do you find the semidiameter correction to be used to correct sextant observations of the stars?
A. It is included in the altitude corrections inside the front cover of the Nautical Almanac.
B. Table 25 in Bowditch contains the correction.
C. A correction of -0.5' should be applied to all star sights.
D. No semidiameter correction is used.

156 615 Ref: Celestial, Sextant, Error, Adjustments D
In what order should the following sextant adjustments be made? I. Make telescope parallel to frame of sextant. II. Set horizon glass perpendicular to frame of sextant. III. Make index mirror and horizon glass parallel when index arm is set at zero. IV. Set index mirror perpendicular to frame of sextant.
A. I, II, III, IV
B. I, IV, II, III
C. III, II, IV, I
D. IV, II, III, I

157 1701 Ref: Celestial, Sextant, Error, Centering D
Which is a nonadjustable error of the sextant?
A. Error of perpendicularity
B. Side error
C. Error of collimation
D. Centering error

158 1284 Ref: Celestial, Sextant, Error, Collimation A
There are seven sources of error in the marine sextant. Of the four errors listed, which one is adjustable?
A. Error of collimation
B. Prismatic error
C. Graduation error
D. Centering error



159 1366 Ref: Celestial, Sextant, Error, Collimation A
What causes the error of collimation with regards to the four adjustments to a sextant?
A. Telescope not parallel to the frame
B. Personal error
C. The frame and index mirror not perpendicular
D. The frame and horizon glass not perpendicular

160 448 Ref: Celestial, Sextant, Error, IC B
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. Instrument correction
C. Phase
D. Dip correction

161 548 Ref: Celestial, Sextant, Error, Index B
In order to remove index error from a sextant, you should adjust the _____.
A. index mirror to make it parallel to the horizon glass with the index set at zero
B. horizon glass to make it parallel to the index mirror with the index set at zero
C. horizon glass to make it parallel to the sextant frame
D. telescope to make it perpendicular to the sextant frame

162 624 Ref: Celestial, Sextant, Error, Index C
Index error of a sextant is primarily caused by _____.
A. improperly correcting the other errors in a sextant
B. the horizon glass not being parallel to the horizon mirror
C. the horizon glass not being parallel to the index mirror
D. human error in taking a celestial observation

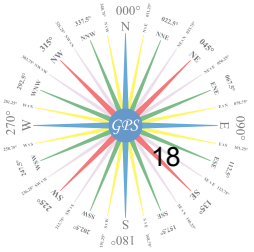
163 1005 Ref: Celestial, Sextant, Error, Index D
The index error is determined by adjusting the _____.
A. sextant frame
B. horizon glass
C. index mirror
D. micrometer drum

164 1736 Ref: Celestial, Sextant, Error, Index B
Which of the four adjustable errors in the sextant is the principle cause of index error?
A. Telescope not being parallel to the frame
B. Index mirror and horizon glass not being parallel
C. Index mirror not being perpendicular to the frame
D. Horizon glass not being perpendicular to the frame

165 163 Ref: Celestial, Sextant, Error, Off the Arc A
A sextant having an index error that is "off the arc" has a _____.
A. positive correction
B. dip error
C. negative correction
D. semidiameter error

166 164 Ref: Celestial, Sextant, Error, On the Arc C
A sextant having an index error that is "on the arc" has a _____.
A. positive correction
B. dip error
C. negative correction
D. semidiameter error

167 1074 Ref: Celestial, Sextant, Error, Prismatic B
The marine sextant is subject to seven different types of errors, four of which may be corrected by the navigator. An error NOT correctable by the navigator is _____.
A. index error
B. prismatic error
C. perpendicularity of the horizon glass
D. perpendicularity of the index mirror



168 1402 Ref: Celestial, Sextant, Error, Prismatic A
What is a nonadjustable error of the sextant?
A. Prismatic error
B. Index error
C. Side error
D. Error of collimation

169 112 Ref: Celestial, Sextant, Error, Side B
A marine sextant has the index arm set at zero and the reflected image of the horizon forms a continuous line with the actual image. When the sextant is rotated about the line of sight the images separate. The sextant has _____.
A. error of perpendicularity
B. side error
C. prismatic error
D. centering error

170 549 Ref: Celestial, Sextant, Error, Side C
In order to remove side error from a sextant, you should adjust the _____.
A. horizon glass to make it parallel to the horizon mirror with the index set at zero
B. horizon glass to make it perpendicular to the index mirror with the index set at zero
C. horizon glass to make it perpendicular to the sextant frame
D. telescope to make it parallel to the sextant frame

171 1735 Ref: Celestial, Sextant, Error, Side A
Which of the four adjustable errors in the sextant causes side error?
A. Horizon glass not being perpendicular to the frame
B. Index mirror not being perpendicular to the frame
C. Telescope not being parallel to the frame
D. Elliptical centering error

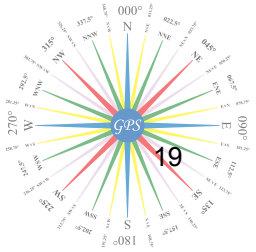
172 1740 Ref: Celestial, Sextant, Error D
Which of these sextant errors is nonadjustable?
A. Prismatic error
B. Graduation error
C. Centering error
D. All of the above

173 322 Ref: Celestial, Sextant, Ho, Low Moon B
At about GMT 1436, on 3 December, the lower limb of the Moon is observed with a sextant having an index error of 2.5' on the arc. The height of eye is 32 feet. The sextant altitude (hs) is 3°38.8'. What is the observed altitude?
A. Ho 4°18.6'
B. Ho 4°29.1'
C. Ho 4°36.3'
D. Ho 4°42.2'

174 558 Ref: Celestial, Sextant, Ho, Low Planet B
In the Bay of Fundy, during twilight, you a take sight of Mars. The sextant altitude (hs) is 03°35.5'. Your height of eye is 32 feet and there is no index error. The air temperature is -10°C and the barometer reads 1010 millibars. What is the observed altitude (Ho)?
A. 03°14.5'
B. 03°15.8'
C. 03°16.2'
D. 03°28.8'

175 696 Ref: Celestial, Sextant, Ho, Low Star C
On 16 January, you take a sight of a star. The sextant altitude (hs) is 4°33.0'. The temperature is 10°C, and the barometer reads 992 millibars. The height of eye is 42 feet. The index error is 1.9' off the arc. What is the observed altitude (Ho)?
A. 4°10.2'
B. 4°14.3'
C. 4°17.0'
D. 4°24.1'

176 699 Ref: Celestial, Sextant, Ho, Low Sun B
On 25 December you observe the Sun's lower limb. The sextant altitude (hs) is 4°06.9'. The height of eye is 47 feet and the index error is 1.6' on the arc. The temperature is 19°F and the barometer reads 1030.8 millibars. What is the observed altitude (Ho)?
A. 3°57.4'
B. 4°01.9'
C. 4°02.5'
D. 4°03.4'



177 986 Ref: Celestial, Sextant, Part, Horizon Glass A
The horizon glass of a sextant is _____.
A. silvered on its half nearer the frame
B. mounted on the index arm
C. between the horizon and the shade glasses
D. All of the above

178 1114 Ref: Celestial, Sextant, Part, Index Mirror A
The part of a sextant mounted directly over the pivot of the index arm is the _____.
A. index mirror
B. horizon glass
C. micrometer drum
D. telescope

179 772 Ref: Celestial, Sextant, Reading, Hs D043NG A
Sextant A reads _____.
A. 29°42.7'
B. 29°45.7'
C. 29°51.8'
D. 30°47.2'

180 773 Ref: Celestial, Sextant, Reading, Hs D043NG B
Sextant B in illustration D043NG reads _____.
A. 30°51.0'
B. 30°42.5'
C. 30°47.5'
D. 31°00.0'

181 774 Ref: Celestial, Sextant, Reading, Hs D043NG D
Sextant C in illustration D043NG reads _____.
A. 30°45.9'
B. 29°56.0'
C. 29°52.0'
D. 29°47.5'

182 775 Ref: Celestial, Sextant, Reading, Hs D043NG C
Sextant D reads _____.
A. 30°47.5'
B. 29°47.5'
C. 29°42.5'
D. 29°41.6'

183 1757 Ref: Celestial, Sextant, Reading, Hs D043NG D
Which sextant in illustration D043NG reads 29°42.5'?
A. A
B. B
C. C
D. D

184 1758 Ref: Celestial, Sextant, Reading, Hs D043NG A
Which sextant in illustration D043NG reads 29°42.7'?
A. A
B. B
C. C
D. D

185 1759 Ref: Celestial, Sextant, Reading, Hs D043NG C
Which sextant in illustration D043NG reads 29°47.5'?
A. A
B. B
C. C
D. D

186 1760 Ref: Celestial, Sextant, Reading, Hs D043NG B
Which sextant in illustration D043NG reads 30°42.5'?
A. A
B. B
C. C
D. D

187 1456 Ref: Celestial, Sextant, Error, Off the Arc D050NG D
What is the index error of sextant A in illustration D050NG?
A. 0' 10" off the arc
B. 0' 10" on the arc
C. 3' 00" off the arc
D. 4' 20" off the arc

188 1457 Ref: Celestial, Sextant, Error, Off the Arc D050NG C
What is the index error of sextant B in illustration D050NG?
A. 0'30" off the arc
B. 1'00" off the arc
C. 3'30" off the arc
D. 1'30" on the arc

189 1755 Ref: Celestial, Sextant, Error, Off the Arc D050NG A
Which sextant has an index error of 4'20" off the arc?
A. A
B. B
C. C
D. D

190 1762 Ref: Celestial, Sextant, Error, Off the Arc D050NG B
Which sextant shown has an index error of 3'30" off the arc?
A. A
B. B
C. C
D. D

191 1458 Ref: Celestial, Sextant, Error, On The Arc D050NG A
What is the index error of sextant C?
A. 0'20" on the arc
B. 1'00" on the arc
C. 2'00" on the arc
D. 5'10" on the arc

192 1459 Ref: Celestial, Sextant, Error, On The Arc D050NG D
What is the index error of sextant D?
A. 7'10" on the arc
B. 6'50" on the arc
C. 3'00" on the arc
D. 2'10" on the arc

193 1756 Ref: Celestial, Sextant, Error, On The Arc D050NG D
Which sextant has an index error of 2'10" on the arc?
A. A
B. B
C. C
D. D

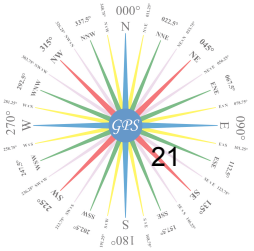
194 1761 Ref: Celestial, Sextant, Error, On The Arc D050NG C
Which sextant shown has an index error of 0'20" on the arc?
A. A
B. B
C. C
D. D

195 334 Ref: Celestial, System, 90-Ho, Calc C
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

196 504 Ref: Celestial, System, 90-Ho, Calc A
If the Sun's observed altitude is 27°12', the zenith distance is _____.
A. 62°48'
B. 27°12'
C. 152°48'
D. 43°12'

197 505 Ref: Celestial, System, 90-Ho, Calc A
If the Sun's observed altitude is 47°50', the zenith distance is _____.
A. 42°10'
B. 42°50'
C. 47°50'
D. 132°10'

198 506 Ref: Celestial, System, 90-Ho, Calc A
If the Sun's observed altitude is 54°30', what is the zenith distance?
A. 35°30'
B. 45°30'
C. 12°30'
D. 14°30'



199 1596 Ref: Celestial, System, 90-Ho, Calc A
When plotting a circle of equal altitude for a high altitude sight, the radius of the circle is determined by the formula _____.
A. 90° - Ho
B. 180° - GHA
C. GHA - LHA
D. z - d

200 2111 Ref: Celestial, System, 90-Ho, Calc A
Zenith distance is equal to _____.
A. 90° - Ho
B. 90° - d
C. Ho° + d
D. 90° - z

201 10 Ref: Celestial, System, 90-Ho D
90° - Ho = _____.
A. sextant altitude
B. co-latitude
C. LHA
D. zenith distance

202 623 Ref: Celestial, System, 90-Ho B
In working out a local apparent noon sight for your latitude, you subtract the Ho from 90°. The 90° represents the angular distance from _____.
A. the equator to the elevated pole
B. your horizon to your zenith
C. your zenith to the elevated pole
D. the geographical position of the Sun to the elevated pole

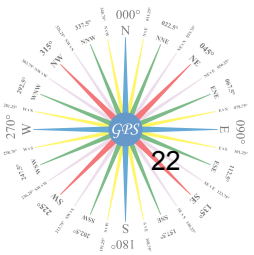
203 904 Ref: Celestial, System, 90-Ho C
The difference of latitude (l) between the geographic position (GP) of a celestial body and your position, at the time of upper transit, is represented by _____.
A. colatitude
B. codistance
C. zenith distance
D. altitude

204 1053 Ref: Celestial, System, 90-Ho D
The line of position determined from a sight with an observed altitude (Ho) of 88°45.0' should be _____.
A. reduced to the meridian and plotted as a latitude line
B. calculated as a longitude line
C. plotted by using an intercept from an assumed position
D. plotted as an arc around the GP of the body

205 1054 Ref: Celestial, System, 90-Ho D
The line of position should be plotted as a circle around the GP of the body when the Ho exceeds what minimum value?
A. 80°
B. 83°
C. 85°
D. 87°

206 1169 Ref: Celestial, System, 90-Ho D
The radius of a circle of equal altitude for a body equals the body's _____.
A. declination
B. polar distance
C. altitude
D. zenith distance

207 1170 Ref: Celestial, System, 90-Ho A
The radius of a circle of equal altitude of a body is equal to the _____.
A. coaltitude of the body
B. altitude of the body
C. codeclination of the body
D. polar distance



208 559 Ref: Celestial, System, Celestial C
In the celestial equator system of coordinates what is equivalent to the colatitude of the Earth system of coordinates?
A. Coaltitude
B. Zenith distance
C. Polar distance
D. Declination

209 560 Ref: Celestial, System, Celestial D
In the celestial equator system of coordinates what is equivalent to the longitude of the Earth system of coordinates?
A. Zenith distance
B. Azimuth angle
C. Declination
D. Greenwich hour angle

210 561 Ref: Celestial, System, Celestial D
In the celestial equator system of coordinates what is NOT equivalent to the longitude of the Earth system of coordinates?
A. SHA
B. t
C. LHA
D. Zn

211 562 Ref: Celestial, System, Celestial B
In the celestial equator system of coordinates what is the equivalent to the meridians of the Earth system of coordinates?
A. Horizon
B. Hour circles
C. Vertical circles
D. Parallel of declination

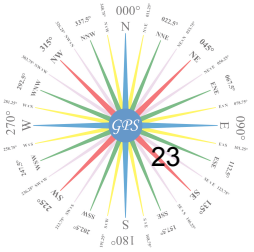
212 848 Ref: Celestial, System, Circle, Diurnal D
The change in the length of the day becomes greater as latitude increases because of the _____.
A. path of the ecliptic relative to the equator
B. decreasing distance between meridians
C. changing distance between the Earth and the Sun
D. increased obliquity of the Sun's diurnal circle

213 876 Ref: Celestial, System, Circle, Diurnal C
The daily path of a celestial body that is parallel to the celestial equator is the _____.
A. altitude circle
B. vertical circle
C. diurnal circle
D. hour circle

214 1116 Ref: Celestial, System, Circle, Diurnal B
The path of a celestial body during its daily apparent revolution around the Earth is called its _____.
A. ecliptic
B. diurnal circle
C. altitude circle
D. circle of position

215 825 Ref: Celestial, System, Circle, Hour D007NG A
The arc of a great circle which passes through the body and celestial poles is part of the _____.
A. hour circle
B. diurnal circle
C. observer's meridian
D. altitude circle

216 24 Ref: Celestial, System, Circle, Prime Vertical A
A celestial body will cross the prime vertical circle when the latitude is numerically _____.
A. greater than the declination and both are of the same name
B. less than the declination and both are of the same name
C. greater than the declination and both are of contrary name
D. less than the declination and both are of contrary name



217 971 Ref: Celestial, System, Circle, Prime Vertical D
The great circle of the celestial sphere that passes through the zenith, nadir, and the eastern point of the horizon is the _____.
A. principal vertical
B. hour circle
C. celestial meridian
D. prime vertical

218 1133 Ref: Celestial, System, Circle, Prime Vertical B
The point on the celestial sphere that is directly below an observer is the _____.
A. pole
B. nadir
C. node
D. zenith

219 1155 Ref: Celestial, System, Circle, Prime Vertical B
The prime vertical is the great circle on the celestial sphere that passes through the _____.
A. celestial poles and the zenith
B. zenith, nadir and the east point of the horizon
C. celestial poles and the celestial body
D. zenith, nadir and celestial body

220 1226 Ref: Celestial, System, Circle, Prime Vertical D
The Sun's center may be coincident with both the celestial equator and the observer's prime vertical circle when _____.
A. it crosses the December solstitial point
B. it crosses the June solstitial point
C. it is in upper transit
D. its declination is zero

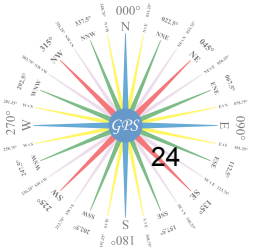
221 832 Ref: Celestial, System, Circle, Principal Vertical C
The azimuth angle of a sun sight is always measured from the _____.
A. Greenwich meridian
B. prime vertical circle
C. principal vertical circle
D. first point of Aries

222 972 Ref: Celestial, System, Circle, Principal Vertical C
The great circle on the celestial sphere that passes through the zenith and the north and south poles is the _____.
A. hour circle
B. prime vertical
C. principal vertical
D. ecliptic

223 1159 Ref: Celestial, System, Circle, Principal Vertical B
The principal vertical circle is that great circle on the celestial sphere that passes through the _____.
A. zenith and the celestial body
B. zenith and the north and south poles
C. poles and Greenwich
D. zenith and is parallel to the horizon

224 1225 Ref: Celestial, System, Circle, Principal Vertical A
The Sun's center is coincident with the principal vertical circle when _____.
A. in lower transit
B. the hour circle and prime vertical are coincident
C. the declination is zero degrees and the azimuth is exactly N 135°E
D. the declination is zero degrees and the azimuth is exactly N 135°W

225 387 Ref: Celestial, System, Circle, Vertical D
Concerning a celestial observation, the azimuth angle is measured from the principal vertical circle to the _____.
A. Greenwich celestial meridian
B. hour circle of the body
C. local celestial meridian
D. vertical circle of the body



226 422 Ref: Celestial, System, GP, Declination C
During the month of October the Sun's declination is _____.
A. north and increasing
B. north and decreasing
C. south and increasing
D. south and decreasing

227 563 Ref: Celestial, System, GP, Declination D
In the celestial equator system of coordinates, what is comparable to latitude on the terrestrial sphere?
A. Altitude
B. Right ascension
C. Celestial meridians
D. Declination

228 826 Ref: Celestial, System, GP, Declination B
The arc of an hour circle between the celestial equator and a point on the celestial sphere, measured northward or southward through 90°, is the _____.
A. altitude
B. declination
C. latitude
D. azimuth angle

229 970 Ref: Celestial, System, GP, Declination D
The GP of a body for a high altitude sight is determined from the Greenwich hour angle and the _____.
A. circle of equal altitude
B. zenith distance
C. azimuth angle
D. declination

230 1202 Ref: Celestial, System, GP, Declination B
The small circle of the celestial sphere parallel to the celestial equator, and transcribed by the daily motion of the body, is called the _____.
A. hour circle of the body
B. parallel of declination
C. vertical circle of the body
D. parallel of altitude

231 140 Ref: Celestial, System, GP, GHA A
A position on the Earth has a longitude of 74°10'E. Its celestial counterpart would have a _____.
A. GHA of 285°50'
B. SHA of 74°10'
C. SHA of 285°50'
D. LHA of 74°10'E

232 965 Ref: Celestial, System, GP, GHA A
The GHA of a star _____.
A. increases at a rate of approximately 15° per hour
B. increases at a rate of approximately 4° per hour
C. decreases at a rate of approximately 15° per hour
D. decreases at a rate of approximately 4° per hour

233 968 Ref: Celestial, System, GP, GHA A
The GP of a body for a high altitude sight is determined from the declination and the _____.
A. Greenwich hour angle
B. azimuth
C. zenith distance
D. right ascension

234 969 Ref: Celestial, System, GP, GHA C
The GP of a body for a high altitude sight is determined from the declination and the _____.
A. right ascension
B. sidereal hour angle
C. Greenwich hour angle
D. observed altitude

235 1454 Ref: Celestial, System, GP, GHA C
What is the geographic longitude of a body whose GHA is 215°15'?
A. 35°15'W
B. 35°15'E
C. 144°45'E
D. 144°45'W

236 1455 Ref: Celestial, System, GP, GHA A
What is the geographic longitude of a body whose GHA is 232°27'?
A. 127°33'E
B. 52°27'E
C. 61°52'W
D. 61°52'E

237 1463 Ref: Celestial, System, GP, GHA D
What is the longitude of the geographical position of a body whose Greenwich hour angle is 210°30'?
A. 30°30'E
B. 59°30'W
C. 120°30'W
D. 149°30'E

238 846 Ref: Celestial, System, GP C
The center of a circle of equal altitude, plotted on the surface of the Earth, is the _____.
A. dead reckoning position of the observer
B. assumed position of the observer
C. geographical position of the body
D. assumed position of the body

239 1251 Ref: Celestial, System, GP C
The values of the Greenwich hour angle and declination, tabulated in all almanacs, are for the _____.
A. upper limb of a celestial body
B. lower limb of a celestial body
C. centers of the various celestial bodies
D. lower limb of the Sun and Moon; center of the stars and planets

240 1561 Ref: Celestial, System, Horizon, Sensible B
When applying a dip correction to the sighted sextant angle (hs), you always subtract the dip because you are correcting _____.
A. hs to the visible horizon
B. hs to the sensible horizon
C. hs to the celestial horizon
D. Ho to the celestial horizon

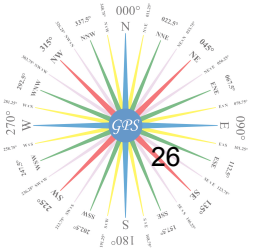
241 566 Ref: Celestial, System, Horizon A
In the horizon system of coordinates what is equivalent to latitude on the Earth?
A. Altitude
B. Zenith
C. Declination
D. Zenith distance

242 567 Ref: Celestial, System, Horizon B
In the horizon system of coordinates what is equivalent to longitude on the Earth?
A. Altitude
B. Azimuth angle
C. Horizon
D. Zenith distance

243 568 Ref: Celestial, System, Horizon C
In the horizon system of coordinates what is equivalent to the declination of the equator system?
A. Nadir
B. Azimuth angle
C. Altitude
D. Zenith distance

244 569 Ref: Celestial, System, Horizon D
In the horizon system of coordinates what is equivalent to the equator on the Earth?
A. Prime vertical circle
B. Principal vertical circle
C. Parallels of altitude
D. Horizon

245 570 Ref: Celestial, System, Horizon D
In the horizon system of coordinates what is equivalent to the Greenwich hour angle of the celestial equator system?
A. Zenith distance
B. Coaltitude
C. Altitude
D. Azimuth



246 571 Ref: Celestial, System, Horizon B
In the horizon system of coordinates what is equivalent to the local hour angle of the celestial equator system?
A. Altitude
B. Azimuth
C. Zenith distance
D. Colongitude

247 572 Ref: Celestial, System, Horizon A
In the horizon system of coordinates what is equivalent to the meridian angle of the celestial equator system?
A. Azimuth angle
B. Zenith distance
C. Colatitude
D. Altitude

248 573 Ref: Celestial, System, Horizon B
In the horizon system of coordinates what is equivalent to the parallels of declination of the celestial equator system?
A. Vertical circles
B. Parallels of altitude
C. Zenith distance
D. Azimuth angle

249 574 Ref: Celestial, System, Horizon B
In the horizon system of coordinates what is equivalent to the poles on the Earth?
A. Celestial poles
B. Zenith, nadir
C. Ecliptic poles
D. Nodes

250 575 Ref: Celestial, System, Horizon A
In the horizon system of coordinates what is the equivalent to the celestial equator of the celestial equator system?
A. Horizon
B. Prime vertical circle
C. Prime meridian
D. Principal vertical circle

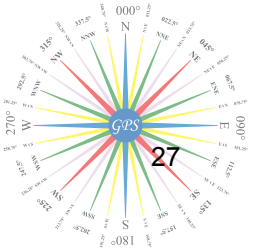
251 576 Ref: Celestial, System, Horizon C
In the horizon system of coordinates what is the equivalent to the meridians on the Earth?
A. Horizon
B. Hour circle
C. Vertical circles
D. Celestial meridians

252 1100 Ref: Celestial, System, Horizon B
The navigational triangle uses parts of two systems of coordinates, one of which is the celestial equator system, the other system is the _____.
A. terrestrial system
B. horizon system
C. astronomical system
D. ecliptic system

253 207 Ref: Celestial, System, Nav Triangle D
A vertex of the navigational triangle is NOT located at the _____.
A. elevated pole
B. celestial body
C. zenith
D. coaltitude

254 270 Ref: Celestial, System, Nav Triangle A
An azimuth angle for a body is measured from the _____.
A. observer's meridian
B. Greenwich meridian
C. body's meridian
D. zenith distance

255 581 Ref: Celestial, System, Nav Triangle A
In the navigational triangle, the angle at the elevated pole is the _____.
A. meridian angle
B. altitude
C. right ascension
D. azimuth angle



256 1101 Ref: Celestial, System, Nav Triangle C
The navigational triangle uses parts of two systems of coordinates, one of which is the horizon system and the other is the _____.
A. terrestrial system
B. astronautical system
C. celestial equator system
D. ecliptic system

257 1387 Ref: Celestial, System, Nav Triangle C
What great circle is always needed to form the astronomical triangle?
A. Celestial Equator
B. Prime Meridian
C. Celestial Meridian
D. Prime Vertical Circle

258 1410 Ref: Celestial, System, Nav Triangle A
What is NOT a side of the navigational triangle used in sight reduction?
A. Altitude
B. Zenith distance
C. Colatitude
D. Polar distance

259 1704 Ref: Celestial, System, Nav Triangle C
Which is NOT a side of the celestial navigational triangle?
A. Co-latitude
B. Zenith distance
C. Altitude
D. Co-declination

260 491 Ref: Celestial, System, Zenith, Sight Reduction C
If an observer is at 35°N latitude, his zenith is _____.
A. 55°S of the celestial equator
B. at the north celestial pole
C. 35°N of the celestial equator
D. 55°N of the celestial equator

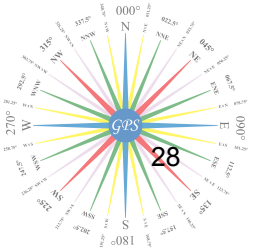
261 1134 Ref: Celestial, System, Zenith, Sight Reduction C
The point on the celestial sphere that is directly over the observer is the _____.
A. node
B. pole
C. zenith
D. nadir

262 1283 Ref: Celestial, System, Zenith, Sight Reduction B
The zenith is the point on the celestial sphere that is _____.
A. 90° away from the poles
B. directly over the observer
C. on the eastern horizon
D. over Greenwich

263 1103 Ref: Celestial, System B
The navigator is concerned with three systems of coordinates. Which system is not of major concern?
A. Terrestrial
B. Ecliptic
C. Celestial horizon
D. Celestial equator

264 1405 Ref: Celestial, Time, Apparent, Sun B
What is apparent time is based on?
A. a fictitious sun moving along the celestial equator
B. the visible sun moving along the ecliptic
C. the Moon's motion in relation to the Sun
D. the movement of the first point of Aries

265 1614 Ref: Celestial, Time, Apparent, Sun C
When the time is based on the movement of the visible Sun along the ecliptic the time is known as _____.
A. real time
B. visible time
C. apparent time
D. mean time



266 369 Ref: Celestial, Time, Chronometer, Error D
Chronometer error may be found by _____.
A. radio time signal
B. comparison with a timepiece of known error
C. applying the prevailing chronometer rate to previous readings
D. All of the above

267 1287 Ref: Celestial, Time, Chronometer, Signal D
Time signals broadcast by WWV and WWVH are transmitted _____.
A. every 15 minutes
B. every 30 minutes
C. every hour
D. continuously throughout day

268 1858 Ref: Celestial, Time, Chronometer, Time Tick D
Yesterday you took a time tick using the 1200 GMT broadcast, and the chronometer read 11h 59m 59s. Today at the 1200 GMT time tick the chronometer read 00h 00m 01s. What is the chronometer error?
A. Gaining 2 seconds
B. Losing 2 seconds
C. Fast 2 seconds
D. Fast 1 second

269 111 Ref: Celestial, Time, Chronometer B
A marine chronometer should be rewound once every _____.
A. 12 hours
B. day
C. 3 days
D. week

270 1620 Ref: Celestial, Time, Chronometer A
When using a mechanical (windup type) marine chronometer, how often should it be reset?
A. Only when it is overhauled
B. Whenever the chronometer error exceeds approximately four minutes
C. At the start of each voyage
D. If the chronometer rate changes from gaining to losing or vice versa

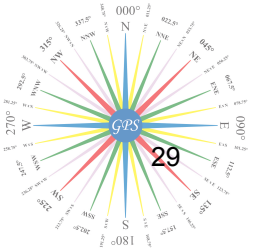
271 1437 Ref: Celestial, Time, Conversion, Arc To Time D
What is the equivalent of 0°48' in time units?
A. 2 min. 12 sec.
B. 2 min. 42 sec.
C. 3 min. 02 sec.
D. 3 min. 12 sec.

272 1438 Ref: Celestial, Time, Conversion, Arc To Time D
What is the equivalent of 1°53' in time units?
A. 3 min. 16 sec.
B. 5 min. 28 sec.
C. 6 min. 43 sec.
D. 7 min. 32 sec.

273 1440 Ref: Celestial, Time, Conversion, Arc To Time C
What is the equivalent of 10°48' in time units?
A. 2 min. 39 sec.
B. 20 min. 12 sec.
C. 43 min. 12 sec.
D. 50 min. 12 sec.

274 1441 Ref: Celestial, Time, Conversion, Arc To Time A
What is the equivalent of 2° 35' in time units?
A. 10 min. 20 sec.
B. 9 min. 10 sec.
C. 7 min. 06 sec.
D. 6 min. 43 sec.

275 1442 Ref: Celestial, Time, Conversion, Arc To Time B
What is the equivalent of 2°52' in time units?
A. 9 min. 23 sec.
B. 11 min. 28 sec.
C. 11 min. 56 sec.
D. 12 min. 18 sec.



276 1446 Ref: Celestial, Time, Conversion, Arc To Time D
What is the equivalent of 4°36' in time units?
A. 9 min. 12 sec.
B. 14 min. 36 sec.
C. 15 min. 36 sec.
D. 18 min. 24 sec.

277 1449 Ref: Celestial, Time, Conversion, Arc To Time B
What is the equivalent of 5°54' in time units?
A. 20 min. 16 sec.
B. 23 min. 36 sec.
C. 25 min. 54 sec.
D. 30 min. 27 sec.

278 1451 Ref: Celestial, Time, Conversion, Arc To Time D
What is the equivalent of 83°29.6' in time units?
A. 5h 47m 34.8s
B. 5h 18m 22.7s
C. 5h 01m 42.3s
D. 5h 33m 58.4s

279 1436 Ref: Celestial, Time, Conversion, Time To Arc C
What is the equivalent of 0 min. 16 sec. in arc units?
A. 0°32'
B. 0°16'
C. 0°04'
D. 0°01'

280 1439 Ref: Celestial, Time, Conversion, Time To Arc C
What is the equivalent of 10 min. 52 sec. in arc units?
A. 0°47'
B. 1°12'
C. 2°43'
D. 3°52'

281 1443 Ref: Celestial, Time, Conversion, Time To Arc D
What is the equivalent of 23 min. 20 sec. in arc units?
A. 16°40'
B. 12°32'
C. 9°28'
D. 5°50'

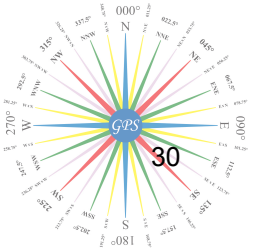
282 1444 Ref: Celestial, Time, Conversion, Time To Arc D
What is the equivalent of 37 min. 32 sec. in arc units?
A. 4°47'
B. 6°38'
C. 7°41'
D. 9°23'

283 1445 Ref: Celestial, Time, Conversion, Time To Arc D
What is the equivalent of 4 min. 04 sec. in arc units?
A. 60°16'
B. 8°08'
C. 2°08'
D. 1°01'

284 1447 Ref: Celestial, Time, Conversion, Time To Arc D
What is the equivalent of 42 min. 48 sec. in arc units?
A. 21°24'
B. 18°16'
C. 11°19'
D. 10°42'

285 1448 Ref: Celestial, Time, Conversion, Time To Arc B
What is the equivalent of 47 min. 20 sec. in arc units?
A. 8°27'
B. 11°50'
C. 13°42'
D. 13°56'

286 1450 Ref: Celestial, Time, Conversion, Time To Arc D
What is the equivalent of 8 min. 56 sec. in arc units?
A. 0°28'
B. 0°46'
C. 1°12'
D. 2°14'



287 847 Ref: Celestial, Time, Day, Earth C
The change in the length of day becomes greater as latitude increases because of the _____.
A. inclination of the diurnal circle to the equator
B. decreasing distance between the terrestrial meridians
C. increased obliquity of the celestial sphere
D. changing distance between the earth and the sun

288 1066 Ref: Celestial, Time, Day, Moon A
The lunar day is _____.
A. longer than a solar day
B. shorter than a solar day
C. the same length as the solar day
D. longer than a solar day during the summer months and shorter in winter months

289 1067 Ref: Celestial, Time, Day, Moon D
The lunar day is also known as the _____.
A. lunitidal interval
B. vulgar establishment of the port
C. nodal day
D. tidal day

290 1461 Ref: Celestial, Time, Day, Moon A
What is the length of the lunar day?
A. 24h 50m 00s
B. 24h 00m 00s
C. 23h 56m 04s
D. 23h 03m 56s

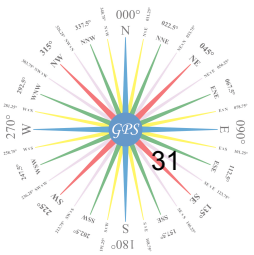
291 168 Ref: Celestial, Time, Day, Star A
A sidereal day is approximately how much shorter than a solar day?
A. 4 minutes
B. 8 minutes
C. 12 minutes
D. 16 minutes

292 169 Ref: Celestial, Time, Day, Star D
A sidereal day is shorter than a solar day. This difference is due to _____.
A. irregularities in the daily rotational rate of the Sun
B. the space motion of the solar system
C. the precession of the equinoxes
D. the use of different reference points

293 1197 Ref: Celestial, Time, Day, Star C
The sidereal day begins _____.
A. when the sun is over the first point of Aries
B. when the first point of Aries is over 180° longitude
C. when the first point of Aries is over the upper branch of the reference meridian
D. at 0000 on 1 January (Sidereal Date)

294 1198 Ref: Celestial, Time, Day, Star A
The sidereal day begins when the _____.
A. first point of Aries is over the upper branch of the reference meridian
B. Sun is over the lower branch of the reference meridian
C. Sun is over the upper branch of the reference meridian
D. first point of Aries is over the lower branch of the reference meridian

295 1199 Ref: Celestial, Time, Day, Star D
The sidereal day begins when the _____.
A. Sun is over the lower branch of the reference meridian
B. Sun is over the upper branch of the reference meridian
C. first point of Aries is over the lower branch of the reference meridian
D. first point of Aries is over the upper branch of the reference meridian



296 421 Ref: Celestial, Time, Day, Sun B
During one synodic rotation, a body makes one complete turn relative to the _____.
A. Earth
B. Sun
C. stars
D. vernal equinox

297 895 Ref: Celestial, Time, E of T, Sun A
The difference between local apparent time (LAT) and local mean time (LMT) is indicated by the _____.
A. equation of time
B. difference of longitude between the local and central meridian in time units
C. longitude in time units
D. zone description

298 941 Ref: Celestial, Time, E of T, Sun C
The equation of time is 12m 00s and the mean Sun is ahead of the apparent Sun. If you are on the central meridian of your time zone, at what zone time will the apparent Sun cross the meridian?
A. 1148
B. 1200
C. 1212
D. It cannot be determined from the information given.

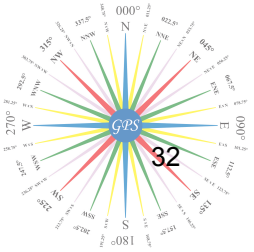
299 942 Ref: Celestial, Time, E of T, Sun A
The equation of time is 8m 00s. The mean Sun is ahead of the apparent Sun. If you are 2°W of the central meridian of your time zone, when will the apparent Sun cross your meridian?
A. 1216
B. 1208
C. 1200
D. 1152

300 943 Ref: Celestial, Time, E of T, Sun A
The equation of time is 8m 40s. The apparent Sun is ahead of the mean Sun. If you are on the central meridian of your time zone, the apparent Sun will cross your meridian at _____.
A. 11-51-20 ZT
B. 12-00-00 ZT
C. 12-04-20 ZT
D. 12-08-40 ZT

301 944 Ref: Celestial, Time, E of T, Sun D
The equation of time measures the _____.
A. difference between local apparent time and Greenwich apparent time
B. longitude in time units
C. difference between sidereal time and local time at the Greenwich meridian
D. time between the passage of the mean sun and the apparent sun over a meridian

302 1076 Ref: Celestial, Time, E of T, Sun B
The maximum difference between mean time and apparent time is _____.
A. equal to the longitude expressed in time units
B. about 16 minutes
C. the difference between the GHA of mean sun and the first point of Aries
D. 15° of arc

303 1608 Ref: Celestial, Time, E of T, Sun C
When the equation of time is taken from the Nautical Almanac for use in celestial navigation, it is used to determine _____.
A. zone time
B. sunrise
C. time of local apparent noon
D. local mean time



304 498 Ref: Celestial, Time, GMT, ZT, 1 D
If the GMT is 1500, the time at 75°E longitude is _____.
A. 1000
B. 1500
C. 1700
D. 2000

305 967 Ref: Celestial, Time, GMT, ZT, 1 B
The GMT is 0445 and your zone description is +1. Your zone time is _____.
A. 0445
B. 0345
C. 0545
D. 1545

306 702 Ref: Celestial, Time, GMT, ZT, 2 C
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.

307 706 Ref: Celestial, Time, GMT, ZT, 2 D
On 6 July, at 1000 zone time, you cross the 180th meridian steaming westward. What is your local time?
A. It is 1000, 5 July.
B. It is 1000, 6 July.
C. It is 2200, 7 July.
D. It is 1000, 7 July.

308 726 Ref: Celestial, Time, GMT, ZT, 2 C
On March 17, at 0500 zone time, you cross the 180th meridian steaming eastward to west longitude. What is your local time?
A. You are in -12 time zone.
B. It is 1700, March 18.
C. It is 0500, March 16.
D. It is 0500, March 18.

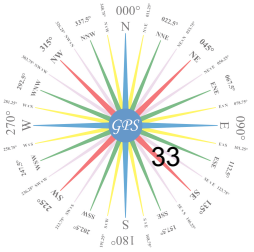
309 729 Ref: Celestial, Time, GMT, ZT, 2 A
On November 1st the zone time is 1700 EST (ZD +5) in LONG 75°W. What is the corresponding zone time and date in LONG 135°E?
A. 0700, November 2nd
B. 0700, November 1st
C. 2200, November 1st
D. 2200, October 31st

310 1102 Ref: Celestial, Time, GMT, ZT, 2 A
The navigator aboard a ship at approximately 165°E longitude observes the Sun at ZT 14-25-04 on 21 September. What is the GMT and Greenwich date of the observation?
A. 03-25-04, 21 September
B. 02-25-04, 21 September
C. 01-25-04, 21 September
D. 01-25-04, 20 September

311 2088 Ref: Celestial, Time, GMT, ZT, 2 D
Your longitude is 179°59'W. The LMT at this longitude is 23h 56m of the 4th day of the month. Six minutes later your position is 179°59'E longitude. Your LMT and date is now _____.
A. 00h 02m on the 4th
B. 00h 02m on the 5th
C. 23h 50m on the 5th
D. 00h 02m on the 6th

312 882 Ref: Celestial, Time, GMT B
The date is the same all over the world at _____.
A. 0000 GMT
B. 1200 GMT
C. 0000 LMT for an observer at 90°E longitude
D. no time

313 1340 Ref: Celestial, Time, GMT B
Universal time (UTI) is another name for _____.
A. sidereal time
B. Greenwich mean time
C. ephemeris time
D. atomic time



314 2087 Ref: Celestial, Time, GMT C
Your longitude is 124°E, and your local mean time is 0520 on the 5th of the month. The mean time and date at Greenwich is _____.
A. 1336 on the 4th
B. 1336 on the 5th
C. 2104 on the 4th
D. 2104 on the 5th

315 903 Ref: Celestial, Time, Lmt, Sun C
The difference in local time between an observer on 114°W and one on 119°W is _____.
A. 1.25 minutes
B. 5 minutes
C. 20 minutes
D. 75 minutes

316 1057 Ref: Celestial, Time, Lmt, Sun D
The LMT of sunrise on the standard meridian is 0552. Your longitude is 99°15'E. What is your ZT of sunrise?
A. 0512
B. 0529
C. 0552
D. 0615

317 1080 Ref: Celestial, Time, Lmt, Sun B
The measurement of local time is based on the passage of the Sun over the _____.
A. upper branch of the observer's meridian
B. lower branch of the observer's meridian
C. upper branch of the Greenwich meridian
D. lower branch of the Greenwich meridian

318 113 Ref: Celestial, Time, Mean, Sun B
A mean sun is used as the reference for solar time for three reasons. Which reason is NOT a cause for use of a mean sun?
A. The motion of the apparent sun is along the ecliptic.
B. Measurement of time is along the celestial equator.
C. The speed of the Earth's revolution is not constant.
D. There are variations in the Earth's rotational speed.

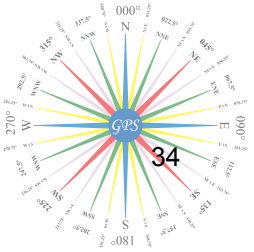
319 1078 Ref: Celestial, Time, Mean, Sun D
The mean sun used to measure time moves _____.
A. along the ecliptic at 15° per hour
B. along the celestial equator at 15° per day
C. along the ecliptic at 15° per day
D. along the celestial equator at 15° per hour

320 1178 Ref: Celestial, Time, Mean, Sun D
The reference point for determination of GMT is the passage of the mean sun over what line?
A. First point of Aries
B. Observer's meridian
C. 0° longitude
D. 180° longitude

321 655 Ref: Celestial, Time, Sidereal, Star C
Local sidereal time is equal to the _____.
A. GHA of Aries minus 180°
B. SHA of Aries
C. LHA of Aries
D. right ascension of Aries plus 180°

322 778 Ref: Celestial, Time, Sidereal, Star D
Sidereal time is NOT used _____.
A. as the basis for star charts
B. to enter a star finder
C. in sight reduction using Pub 249
D. in sight reductions of planet observations

323 779 Ref: Celestial, Time, Sidereal, Star B
Sidereal time is used by navigators when _____.
A. used with the equation of time
B. used in the form of LHA Aries
C. calculating the time of moonrise
D. determining local apparent time



324 824 Ref: Celestial, Time, Sidereal, Star D
The approximate positions of the stars are based on sidereal time, which is based upon rotation of the Earth relative to _____.
A. winter solstice
B. autumnal equinox
C. summer solstice
D. vernal equinox

325 2102 Ref: Celestial, Time, Sidereal, Star C
Your vessel is at the equator at midnight on 1 January, and a star is observed rising. At what time will this same star rise on 1 February, assuming your vessel's location is still at the equator?
A. 2208
B. 2110
C. 2158
D. 2317

326 195 Ref: Celestial, Time, Time Diagram, Earth A
A time diagram is a diagram of the celestial sphere as observed from above the _____.
A. south celestial pole
B. north celestial pole
C. observer's meridian
D. Greenwich meridian

327 327 Ref: Celestial, Time, Time Diagram, Earth C
At meridian transit, the diagram used by a navigator to illustrate the angles involved is based on the _____.
A. celestial equator as observed from above the south celestial pole
B. celestial equator as observed from above the north celestial pole
C. plane of the observer's meridian
D. plane of the Greenwich meridian

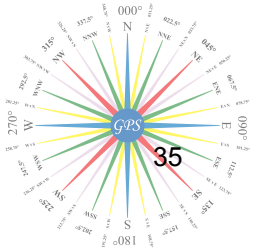
328 1124 Ref: Celestial, Time, Year, Earth B
The period of the Earth's revolution from perihelion to perihelion is the _____.
A. astronomical year
B. anomalistic year
C. solar year
D. sidereal year

329 1014 Ref: Celestial, Time, Year, Star A
The length of the year with respect to the vernal equinox is the _____.
A. tropical year
B. sidereal year
C. anomalistic year
D. All of the above

330 1242 Ref: Celestial, Time, Year, Star D
The tropical year differs from which year by 20 minutes?
A. Astronomical year
B. Natural year
C. Equinoctial year
D. Sidereal year

331 165 Ref: Celestial, Time, ZD B
A ship is in longitude 54°00'W on a true course of 090°. The ship's clocks are on the proper time zone. At what longitude should the clocks be changed to maintain the proper zone time?
A. 45°00'W
B. 52°30'W
C. 60°00'W
D. 67°30'W

332 166 Ref: Celestial, Time, ZD D
A ship is in longitude 54°00'W on a true course of 270°. The ship's clocks are on the proper time zone. At what longitude should the clocks be changed to maintain the proper zone time?
A. 45°00'W
B. 52°30'W
C. 60°00'W
D. 67°30'W



333 645 Ref: Celestial, Time, ZD C
It is 1200 local time for an observer at 54°E longitude. Which statement is TRUE?
A. It is afternoon at Greenwich.
B. It is midnight at 126°E longitude.
C. The observer is in time zone -4.
D. All of the above are true.

334 925 Ref: Celestial, Time, ZD A
The dividing meridian between zone descriptions +4 and +5 is _____.
A. 67°30'W
B. 90°00'W
C. 67°30'E
D. 75°00'E

335 926 Ref: Celestial, Time, ZD B
The dividing meridian between zone descriptions +7 and +8 is _____.
A. 105°00'W
B. 112°30'W
C. 117°00'W
D. 120°30'W

336 927 Ref: Celestial, Time, ZD D
The dividing meridian between zone descriptions -10 and -11 is _____.
A. 135°30'E
B. 145°00'E
C. 150°00'E
D. 157°30'E

337 928 Ref: Celestial, Time, ZD C
The dividing meridian between zone descriptions -2 and -3 is _____.
A. 15°30'E
B. 30°00'E
C. 37°30'E
D. 45°00'E

338 929 Ref: Celestial, Time, ZD B
The dividing meridian between zone descriptions -4 and -5 is _____.
A. 60°00'E
B. 67°30'E
C. 75°00'E
D. 60°00'W

339 930 Ref: Celestial, Time, ZD A
The dividing meridian between zone descriptions -7 and -8 is _____.
A. 112°30'E
B. 118°30'E
C. 120°00'E
D. 116°30'W

340 1214 Ref: Celestial, Time, ZD C
The standard meridian for the time zone +1 is _____.
A. 0°
B. 7 1/2°W
C. 15°W
D. 7 1/2°E

341 1215 Ref: Celestial, Time, ZD B
The standard time meridian for description +12 is _____.
A. 172.5°E
B. 180.0°
C. 172.5°W
D. 165.0°W

342 1216 Ref: Celestial, Time, ZD D
The standard time meridian for zone description -1 is _____.
A. 0°
B. 7 1/2°W
C. 7 1/2°E
D. 15°E

343 1217 Ref: Celestial, Time, ZD C
The standard time meridian for zone description -12 is _____.
A. 165.0°E
B. 172.5°E
C. 180.0°
D. 172.5°W