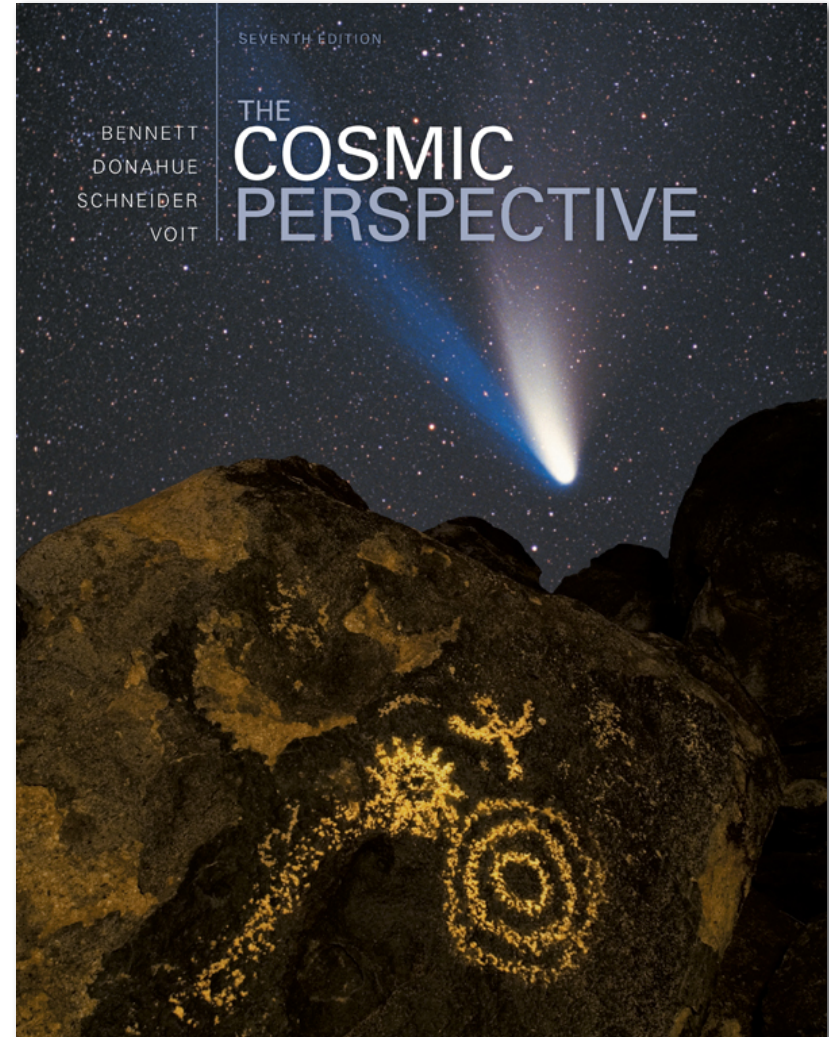


The Cosmic Perspective

Seventh Edition

**Discovering the
Universe
for Yourself**



2.1 Patterns in the Night Sky

- What does the universe look like from Earth?
- Why do stars rise and set?
- Why do the constellations we see depend on latitude and time of year?

The ecliptic is

- a) the projection of Earth's equator onto the celestial sphere.
- b) the path of the Sun on the celestial sphere.
- c) the projection of Earth's orbit onto the celestial sphere.
- d) all of the above
- e) B and C

The ecliptic is

- a) the projection of Earth's equator onto the celestial sphere.
- b) the path of the Sun on the celestial sphere.
- c) the projection of Earth's orbit onto the celestial sphere.
- d) all of the above
- e) B and C**

The meridian is

- a) the projection of Earth's equator onto the celestial sphere.
- b) the point in your local sky directly above you.
- c) the boundary between the northern and southern halves of your local sky.
- d) the boundary between the eastern and western halves of your local sky.

The meridian is

- a) the projection of Earth's equator onto the celestial sphere.
- b) the point in your local sky directly above you.
- c) the boundary between the northern and southern halves of your local sky.
- d) the boundary between the eastern and western halves of your local sky.**

All of the following are points on your local sky. Which one does not move on the celestial sphere over the course of a day?

- a) the zenith
- b) altitude of 30 degrees, direction due north
- c) the north celestial pole
- d) none of the above

All of the following are points on your local sky. Which one does not move on the celestial sphere over the course of a day?

- a) the zenith
- b) altitude of 30 degrees, direction due north
- c) the north celestial pole**
- d) none of the above

If the Sun and a constellation are at the same location in your local sky, then that constellation is

- a) not a constellation that can be observed at night.
- b) only observable from the southern hemisphere.
- c) visible at a different time of year.
- d) part of the zodiac.
- e) C and D

If the Sun and a constellation are at the same location in your local sky, then that constellation is

- a) not a constellation that can be observed at night.
- b) only observable from the southern hemisphere.
- c) visible at a different time of year.
- d) part of the zodiac.
- e) C and D**

A star near the north celestial pole, observed from the northern hemisphere

- a) will never rise or set.
- b) is called a circumpolar star.
- c) is part of the zodiac.
- d) A and B

A star near the north celestial pole, observed from the northern hemisphere

- a) will never rise or set.
- b) is called a circumpolar star.
- c) is part of the zodiac.
- d) A and B**

In order to see all of the celestial sphere at night, one must

- a) observe at different times of year.
- b) observe from different latitudes.
- c) observe from different longitudes.
- d) A and B
- e) B and C

In order to see all of the celestial sphere at night, one must

- a) observe at different times of year.
- b) observe from different latitudes.
- c) observe from different longitudes.**
- d) A and B
- e) B and C

2.2 The Reason for Seasons

- What causes the seasons?
- How does the orientation of Earth's axis change with time?

On the (northern) spring equinox the Sun

- a) is on the celestial equator.
- b) is moving from the southern part of the celestial sphere to the northern part of the celestial sphere.
- c) is on the ecliptic.
- d) all of the above
- e) none of the above

On the (northern) spring equinox the Sun

- a) is on the celestial equator.
- b) is moving from the southern part of the celestial sphere to the northern part of the celestial sphere.
- c) is on the ecliptic.
- d) all of the above**
- e) none of the above

The Sun is at its most southern position on the celestial sphere

- a) on the winter solstice (December 21).
- b) on the summer solstice (June 21).
- c) on the equinoxes.
- d) The Sun does not move north and south on the celestial sphere.

The Sun is at its most southern position on the celestial sphere

- a) on the winter solstice (December 21).**
- b) on the summer solstice (June 21).
- c) on the equinoxes.
- d) The Sun does not move north and south on the celestial sphere.

If you are at a latitude of 23.5 degrees north, when will the Sun be directly overhead?

- a) never
- b) at noon on the summer solstice (June 21)
- c) at noon on the equinoxes
- d) at noon on the winter solstice (December 21)
- e) every day at noon

If you are at a latitude of 23.5 degrees north, when will the Sun be directly overhead?

- a) never
- b) at noon on the summer solstice (June 21)**
- c) at noon on the equinoxes
- d) at noon on the winter solstice (December 21)
- e) every day at noon

Which lists the various motions of Earth in increasing order of the period (duration) of the motion?

- a) rotation, revolution, precession
- b) revolution, rotation, precession
- c) rotation, precession, revolution
- d) revolution, precession, rotation
- e) precession, rotation, revolution

Which lists the various motions of Earth in increasing order of the period (duration) of the motion?

- a) rotation, revolution, precession**
- b) revolution, rotation, precession
- c) rotation, precession, revolution
- d) revolution, precession, rotation
- e) precession, rotation, revolution

Which of the following is *not* changed by the precession of Earth's axis?

- a) the location of the North Celestial Pole relative to the stars
- b) the location of the North Celestial Pole in your local sky
- c) the location of the celestial equator relative to the stars
- d) A and B

Which of the following is *not* changed by the precession of Earth's axis?

- a) the location of the North Celestial Pole relative to the stars
- b) the location of the North Celestial Pole in your local sky**
- c) the location of the celestial equator relative to the stars
- d) A and B

2.3 The Moon, Our Constant Companion

- Why do we see phases of the Moon?
- What causes eclipses?

When the phase of the Moon is full,

- a) the Moon and Sun are on opposite sides of Earth.
- b) the Moon and Sun are on the same side of Earth.
- c) the Moon and Earth are on opposite sides of the Sun.
- d) the Moon is closer to Earth than normal.
- e) the Moon is further from Earth than normal.

When the phase of the Moon is full,

- a) the Moon and Sun are on opposite sides of Earth.**
- b) the Moon and Sun are on the same side of Earth.
- c) the Moon and Earth are on opposite sides of the Sun.
- d) the Moon is closer to Earth than normal.
- e) the Moon is further from Earth than normal.

When the phase of the Moon is gibbous,

- a) the Moon is closer to Full Moon than to New Moon.
- b) the Moon is closer to New Moon than to Full Moon.
- c) more than half of the visible face of the Moon is illuminated.
- d) A and C
- e) B and C

When the phase of the Moon is gibbous,

- a) the Moon is closer to Full Moon than to New Moon.
- b) the Moon is closer to New Moon than to Full Moon.
- c) more than half of the visible face of the Moon is illuminated.
- d) A and C**
- e) B and C

What time does the first quarter moon rise?

- a) sunrise
- b) noon
- c) sunset
- d) midnight

What time does the first quarter moon rise?

- a) sunrise
- b) noon**
- c) sunset
- d) midnight

When the Moon passes through Earth's shadow, this is called

- a) a lunar eclipse.
- b) a solar eclipse.
- c) either a lunar eclipse or a solar eclipse, depending on the distance between the Moon and Earth.
- d) either a lunar eclipse or a solar eclipse, depending on the phase of the Moon.

When the Moon passes through Earth's shadow, this is called

- a) a lunar eclipse.**
- b) a solar eclipse.
- c) either a lunar eclipse or a solar eclipse, depending on the distance between the Moon and Earth.
- d) either a lunar eclipse or a solar eclipse, depending on the phase of the Moon.

Which of the following results in an annular solar eclipse?

- a) The Moon passes through Earth's umbra.
- b) Earth passes through the Moon's umbra.
- c) Earth passes through the Moon's penumbra.
- d) Earth passes behind the Moon's umbra.
- e) The Moon passes through Earth's penumbra.

Which of the following results in an annular solar eclipse?

- a) The Moon passes through Earth's umbra.
- b) Earth passes through the Moon's umbra.
- c) Earth passes through the Moon's penumbra.
- d) Earth passes behind the Moon's umbra.**
- e) The Moon passes through Earth's penumbra.

Lunar eclipses do not occur every month because

- a) the orbit of the Moon is tilted relative to Earth's equator.
- b) the orbit of the Moon is tilted relative to the ecliptic.
- c) a lunar eclipse can only occur at the equinoxes.
- d) Lunar eclipses do occur every month.

Lunar eclipses do not occur every month because

- a) the orbit of the Moon is tilted relative to Earth's equator.
- b) the orbit of the Moon is tilted relative to the ecliptic.**
- c) a lunar eclipse can only occur at the equinoxes.
- d) Lunar eclipses do occur every month.

The Saros cycle describes

- a) the 18+ year cycle of lunar and solar eclipses.
- b) the 6 month period between eclipse seasons.
- c) the cycle of retrograde motion of the planets.
- d) the period between total solar eclipses.

The Saros cycle describes

- a) the 18+ year cycle of lunar and solar eclipses.**
- b) the 6 month period between eclipse seasons.
- c) the cycle of retrograde motion of the planets.
- d) the period between total solar eclipses.

2.4 The Ancient Mystery of the Planets

- Why was planetary motion so hard to explain?
- Why did the ancient Greeks reject the real explanation for planetary motion?

What causes the apparent retrograde motion of Mars?

- a) Mars reverses its orbital motion when it is furthest from the Sun.
- b) When Earth passes Mars it appears to change its motion relative to the background stars.
- c) Because Earth orbits faster than Mars, Mars always seems to move in the opposite direction as the Moon and the Sun.
- d) Mars orbits the Sun in the opposite direction as Earth.

What causes the apparent retrograde motion of Mars?

- a) Mars reverses its orbital motion when it is furthest from the Sun.
- b) When Earth passes Mars it appears to change its motion relative to the background stars.**
- c) Because Earth orbits faster than Mars, Mars always seems to move in the opposite direction as the Moon and the Sun.
- d) Mars orbits the Sun in the opposite direction as Earth.

Stellar parallax is

- a) the changing position of stars relative to each other due to their different speeds in the Milky Way.
- b) the changing position of nearby stars compared to background stars as Earth's axis precesses.
- c) the changing position of nearby stars compared to background stars as Earth orbits the Sun.
- d) the changing position of stars relative to each other as the Sun orbits the center of the Milky Way.

Stellar parallax is

- a) the changing position of stars relative to each other due to their different speeds in the Milky Way.
- b) the changing position of nearby stars compared to background stars as Earth's axis precesses.
- c) the changing position of nearby stars compared to background stars as Earth orbits the Sun.**
- d) the changing position of stars relative to each other as the Sun orbits the center of the Milky Way.