

Quiz 3. Angles, Time, Seasons, Precession

1. **Mult Choice (1pt)**

The Moon and Sun both subtend an angle of $1/2$ degree. How many arcminutes is this?

- (a) $1/2$
- (b) 6
- (c) 30 ✓
- (d) 60
- (e) 3600

2. **Mult Choice (1pt)**

If the center of a cyclical motion is outside of the body, the motion is called _____. If the center of cyclical motion is at the body's center of gravity, it is called rotation.

- (a) spinning
- (b) revolution ✓
- (c) chaotic motion
- (d) periodicity
- (e) the twist

3. **True or False (1pt)**

The shortest days of the year in the northern hemisphere are also those with the most direct sunlight.

- (a) True
- (b) False ✓

4. **True or False (1pt)**

The length of daylight hours for a city on the equator is longer than for a city at latitude 40 deg north on any day of the year.

- (a) True
- (b) False ✓

5. **True or False (1pt)**

Earth's spin axis would not precess if Earth had no equatorial bulge.

- (a) True ✓
- (b) False

6. **Mult Choice (1pt)**

How many of the 88 constellations does the Sun pass through in a tropical year?

- (a) none
- (b) 8
- (c) 11

- (d) 12
- (e) 13 ✓

7. **Mult Choice (1pt)**

Fall begins the moment the Sun crosses the point in the sky called the _____.

- (a) vernal equinox
- (b) summer solstice
- (c) autumnal equinox ✓
- (d) winter solstice
- (e) North Celestial Pole

8. **Mult Choice (1pt)**

Which of these is not directly linked to *precession*?

- (a) continuously changing coordinates of stars
- (b) Earth's wobbling spin axis
- (c) vernal equinox shifting W by 50'' per year
- (d) lunar phases (crescent, full, etc.) ✓
- (e) different pole stars in the past

9. **Mult Choice (1pt)**

The asymmetry of the Earth's analemma is caused by _____.

- (a) the Earth's equatorial bulge
- (b) the obliquity of the ecliptic
- (c) Earth's changing speed in its elliptical orbit ✓
- (d) the tilt of the Moon's orbit
- (e) the Earth's wobbling spin axis (precession)

10. **Mult Choice (1pt)**

The formula $d = \frac{1}{p}$ gives the distance measured in _____ to an object with a parallax angle measured in arcseconds.

- (a) light years
- (b) kiloparsecs
- (c) meters
- (d) furlongs
- (e) parsecs ✓