**SECTION 30.2 *Measuring the Stars***

*In your textbook, read about groups of stars and stellar positions and distances.*

# Circle the letter of the choice that best completes the statement or answers the question.

1. Constellations are
   1. the brightest stars.
   2. stars over Greece.
   3. groups of stars named after animals, mythological characters, or everyday objects.
   4. found only in the northern hemisphere.
2. Ursa Major, or the big dipper, is an example of a
   1. circumpolar constellation.
   2. constellation that can be seen only in winter.
   3. constellation that can be seen only in summer.
   4. constellation that can be seen only in the fall.
3. Scientists measure distances to stars and observe how stars interact with one another to
   1. determine if stars are right next to each other.
   2. determine if stars are touching.
   3. determine the names of constellations.
   4. determine which stars are gravitationally bound to each other.
4. Astronomers can identify binary stars by
   1. comparing the colors of the stars.
   2. measuring the parallax of the stars.
   3. measuring the position of the visible star in the pair and noting shifts as it orbits the center of mass between it and the unseen companion star.
   4. examining the stars’ absorption spectra.
5. When estimating the distance of stars from Earth, astronomers use the fact that nearby stars shift in position as observed from Earth, which is called
   1. parsec. **b.** parallax. **c.** precision. **d.** shafting.

*In your textbook, read about the basic properties of stars.*

# For each term in Column A, write the letter of the matching item in Column B.

**Column A Column B**

**6.** Ancient Greek classification system based on how bright a star appears to be

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**7.** Brightness of an object if it was placed at a distance of 10 pc

**8.** Energy output from the surface of a star per second

**9.** Unit of measurement used to express the energy emitted per second

* 1. luminosity
  2. absolute magnitude
  3. watt
  4. apparent magnitude

**SECTION 30.2 *Measuring the Stars, continued***

*In your textbook, read about the spectra of stars.*

# Use the diagram below to answer the questions.

**Surface temperature (K)**

**40 000 10 000 7 000 6 000 5 000 3 000**

**–5**

**Supergiants**

**Giants**

**Sun**

**White dwarfs**

**0**

**+5**

**Absolute magnitude**

**+10**

**+15**

**O5**

**B0 B5 A0 A5 F0 F5**

**G0 G5 K0 K5 M0 M5**

**Spectral type**

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1. The spectral types—O, B, A, F, G, K, M—were originally based on the pattern of spectral lines. What else did astronomers discover that the classes corresponded to? What is the difference from O to M?
2. What type of star is the Sun? What is its surface temperature? What is its absolute magnitude?
3. What is the typical composition of a star?
4. What makes a star’s spectrum appear to be different from another star’s?