

Chapter 25 Beyond Our Solar System

# Section 25.1 Properties of Stars

(pages 700–706)

*This section describes the characteristics of stars, explains how astronomers measure distances to stars, and describes the Hertzsprung-Russell diagram.*

## Reading Strategy (page 700)

**Previewing** Before you read, write two questions about the Hertzsprung-Russell diagram on page 704. As you read, write answers to your questions. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Questions About the Hertzsprung-Russell Diagram	
Question	Answer
a.	b.
c.	d.

## Characteristics of Stars (page 701)

- Three properties of stars are their \_\_\_\_\_, temperature, and mass.
- ☛ Is the following sentence true or false? A star’s color can tell you what its approximate temperature is. \_\_\_\_\_
- ☛ Binary stars can be used to determine the \_\_\_\_\_ of a star. Circle the correct answer.  

mass
color
temperature

## Measuring Distances to Stars (page 702)

- The apparent change in position of a star when seen from opposite sides of Earth’s orbit is called \_\_\_\_\_. Circle the correct answer.  

light-year
parallax
absolute magnitude
- ☛ Circle the letter of each statement that is true.
  - Nearby stars have large parallax angles.
  - Nearby stars have larger parallax angles than distant stars have.
  - The parallax angles of distant stars are too small to measure.
- Is the following sentence true or false? Astronomers have calculated the parallax angles of millions of stars. \_\_\_\_\_

**Chapter 25 Beyond Our Solar System**

**Stellar Brightness (page 703)**

7. ☉ Three factors that control the apparent brightness of a star as seen from Earth are how big the star is, how \_\_\_\_\_ the star is, and how far away the star is.
8. Is the following sentence true or false? A third-magnitude star is ten times as bright as a fourth-magnitude star. \_\_\_\_\_
9. A star's actual brightness is its \_\_\_\_\_.  
 density                      absolute magnitude                      apparent magnitude

Match each definition to its term.

Definition	Term
_____ 10. a star's brightness as it appears from Earth	a. absolute magnitude b. apparent magnitude
_____ 11. how bright a star actually is	

**Hertzsprung-Russell Diagram (pages 704–706)**

12. ☉ Circle the letter of what a Hertzsprung-Russell diagram shows.
- a. the location of stars in the sky
  - b. the absolute magnitude and temperature of stars
  - c. the apparent magnitude and temperature of stars
13. Select the appropriate letter in the figure that identifies each of the following features.

- \_\_\_\_\_ the sun
- \_\_\_\_\_ cool, small, red stars
- \_\_\_\_\_ white dwarfs (small faint stars)
- \_\_\_\_\_ red giants (bright cool stars)
- \_\_\_\_\_ hot, large, blue stars

**Idealized Hertzsprung-Russell Diagram**

