

# AstroStellarMeasurements

The LaTeX code that creates this quiz is released to the Public Domain  
Attribution for each question is documented in the Appendix

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Latex markup at

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# 1 Quiz

1. Stellar parallax is <sup>1</sup>
  - A. an annual change in angular position of a star as seen from Earth**
  - B. an astronomical object with known luminosity.
  - C. the total amount of energy emitted per unit time.
  - D. a numerical measure of brightness as seen from Earth
  - E. a numerical measure of brightness as seen from a distance of approximately 33 light-years
2. A star that is increasing its temperature while maintaining constant luminosity is<sup>2</sup>
  - A. getting smaller in size**
  - B. turning red
  - C. in the process of dying
  - D. on the verge of becoming a supernovae
  - E. getting larger in size
3. The range of wavelength for visible light is between<sup>3</sup>
  - A. 400 and 700 nanometers**
  - B. 1 and 10 nanometers
  - C. 600 and 1200 nanometers
  - D. 0.1 and 10 nanometers
  - E. 5000 and 6000 nanometers
4. Based on the HR diagrams and images in stars shown in the materials, a very large red supergiant has a diameter that is about \_\_\_\_ greater than a small white dwarf.<sup>4</sup>
  - A.  $3 \times 10^3$
  - B.  $3 \times 10^9$
  - C.  $3 \times 10^{11}$
  - D.  $3 \times 10^7$
  - E.  $3 \times 10^5$**
5. Luminosity is <sup>5</sup>
  - A. an annual change in angular position of a star as seen from Earth
  - B. an astronomical object with known luminosity.
  - C. the total amount of energy emitted per unit time.**
  - D. a numerical measure of brightness as seen from Earth
  - E. a numerical measure of brightness as seen from a distance of approximately 33 light-years
6. A standard candle is<sup>6</sup>
  - A. an annual change in angular position of a star as seen from Earth
  - B. an astronomical object with known luminosity.**
  - C. the total amount of energy emitted per unit time.
  - D. a numerical measure of brightness as seen from Earth
  - E. a numerical measure of brightness as seen from a distance of approximately 33 light-years
7. Absolute magnitude is <sup>7</sup>

- A. an annual change in angular position of a star as seen from Earth  
 B. an astronomical object with known luminosity.  
 C. the total amount of energy emitted per unit time.  
 D. a numerical measure of brightness as seen from Earth  
**E. a numerical measure of brightness as seen from a distance of approximately 33 light-years**
8. Relative magnitude is<sup>8</sup>
- A. an annual change in angular position of a star as seen from Earth  
 B. an astronomical object with known luminosity.  
 C. the total amount of energy emitted per unit time.  
**D. a numerical measure of brightness as seen from Earth**  
 E. a numerical measure of brightness as seen from a distance of approximately 33 light-years
9. In 1989 the Hipparcos satellite was launched primarily for obtaining parallaxes and proper motions allowing measurements of stellar parallax for stars up to about 500 parsecs away, which is about \_\_\_\_ times the diameter of the Milky Way Galaxy.<sup>9</sup>
- A. .015**  
 B. 0.15  
 C. 1.5  
 D. 15  
 E. 150
10. An object emits thermal (blackbody) radiation with a peak wavelength of 250nm. How does its temperature compare with the Sun? <sup>10</sup>
- A. The temperature is the same  
 B. 2 times colder than the Sun  
**C. 2 times hotter than the Sun**  
 D. 5 times colder than the Sun  
 E. 5 times hotter than the Sun
11. Let us define the 'normalized intensity' of a Sun-like star situated one parsec from Earth to be  $4\pi I = 1$ . What is  $4\pi I$  for a star with 100 times the Sun's energy output that is situated 10pc from Earth? (In other words, by what factor does intensity change if a stars energy output increases by a factor of 100 as it is moved 10 times farther away?)<sup>11</sup>
- A.  $10^{-2}$   
 B.  $10^{-3}$   
 C.  $10^{-1}$   
 D.  $10^{-4}$   
**E. 1**
12. An orbiting satellite makes a circular orbit 5 AU from the Sun. It measures a parallax angle of 0.2 of an arcsecond (each way from the average position). What is the star's distance? <sup>12</sup>
- A. 10 parsecs  
**B. 25 parsecs**  
 C. 5 parsecs  
 D. 1 parsec  
 E. 50 parsecs

## 2 Attribution

### Notes

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