1. How far away is the nearest star beyond the Sun, in parsecs?

- ✅ **a.** between 1 and 2 pc
- ⭕ **b.** about 4 pc
- ⭕ **c.** between 1/2 and 1 pc
- ⭕ **d.** about 12 pc

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2. Suppose that two identical stars (they have the same total light output) are located so that star A is at a distance of 5 pc, and star B is at a distance of 25 pc from Earth. How will star B appear, compared with star A?

- ⭕ **a.** Star B will be 1/20 as bright as star A.
- ✅ **b.** Star B will be 1/25 as bright as star A.
- ⭕ **c.** Star B will be 1/2 as bright as star A.
- ⭕ **d.** Star B will be 1/5 as bright as star A.

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3. The Pleiades cluster consists of a number of bright stars wrapped in a cloud of gas and dust that appears blue. This cluster is an example of

- ✅ **a.** a reflection nebula.
- ⭕ **b.** a dark nebula.
- ⭕ **c.** a giant molecular cloud.
- ⭕ **d.** a stellar "nursery."

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4. New stars are formed from

- ⭕ **a.** hot supernova remnants.
- ⭕ **b.** activity around black holes in the centers of galaxies.
- ⭕ **c.** pure energy in free space.
- ✅ **d.** huge, cool dust and gas clouds.

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5. The stars that last longest are the stars

- ⭕ **a.** with the largest mass, that is, the largest amount of fuel.
- ⭕ **b.** with the largest luminosity and highest temperature since they take the longest to cool down to invisibility.
- ✅ **c.** with the smallest mass.
- ⭕ **d.** of intermediate mass; small-mass stars have little fuel and burn out quickly, while very massive stars burn their fuel very rapidly.

6. What makes a red giant star so large?

a. The star has many times more mass than the Sun.

b. Red giants are rapid rotators, and centrifugal force pushes the surface of the star outward.

c. The helium-rich core has expanded, pushing the outer layers of the star outward.

✓ **d.** The hydrogen-burning shell is heating the envelope and making it expand.

7. What is the most important use of Cepheid variables for astronomers?

✓ **a.** The distance to a Cepheid variable can be found very easily.

b. The diameter of a Cepheid variable can be found very easily.

c. The characteristics of the pulsation of a Cepheid variable can be used to investigate conditions in the core of the star.

d. The metal content of a Cepheid variable can be found very easily.

8. The age of a cluster of stars can be judged by the

a. amount of radioactive elements detected on the surfaces of its stars.

b. number of novae per year occurring within the cluster.

✓ **c.** turnoff point on the main sequence of its Hertzsprung-Russell diagram.

d. total number of stars within the cluster.