**Astronomy Assessment and TPS Questions:**

**Spectroscopic Parallax**

Star A appears brighter than Star B, but Star A actually gives off less light than Star B. The apparent magnitude and absolute magnitudes for Star A are m = 0 and M = 1, respectively. Use this information to answer the following four questions.

1. Which of the following are the best possible values for the apparent and absolute magnitudes of Star B?
   1. m = 1 and M = 1
   2. m = -1 and M = 1
   3. m = 1 and M = -1
   4. m = -1 and M = -1
2. Which is the most correct statement about the distance of Star A from Earth?
3. Star A is closer than 10 parsecs from Earth.
4. Star A is exactly 10 parsecs from Earth.
5. Star A is farther than 10 parsecs from Earth.
6. There is insufficient information to determine this.
7. If both stars are main sequence stars, which is true about the temperatures of Star A and Star B?
8. Star B is hotter than Star A.
9. Star B is cooler than Star A
10. Star B is the same temperature as Star A.
11. There is insufficient information to determine this.
12. If both stars are main sequence stars, which is true about the lifetimes of Star A and Star B?
13. Star B will live longer than Star A.
14. Star A will live longer than Star B.
15. Star B will have the same lifetime as Star A.
16. There is insufficient information to determine this.