

Astronomy Ranking Task: Apparent and Absolute Magnitude

Exercise #4

Description: The table below provides an incomplete list of the magnitude and distance (from Earth) for five stars (A - E).

| Star Name | Apparent Magnitude | Absolute Magnitude | Distance from Earth (parsecs) |
|-----------|--------------------|--------------------|-------------------------------|
| A | -1 | 3 | |
| B | 5 | 1 | |
| C | | 0 | 10 |
| D | 1 | | 10,000 |
| E | 3 | 3 | |

A. Ranking Instructions: Rank the brightness (from greatest to least) of each star (A – E) as it would appear in the night sky. Note that it is not necessary, but may be helpful, to complete the table before making your rankings.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ Least

Or, the brightness of each star would appear the same from Earth ____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:

B. Ranking Instructions: Rank the apparent magnitude number (from greatest to least) of each star (A – E).

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ Least

Or, the apparent magnitude number of each star is the same. ____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:

C. Ranking Instructions: Rank the actual brightness or luminosity (from greatest to least) of each star (A – E).

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ Least

Or, the actual brightness of each star is the same. _____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:

D. Ranking Instructions: Rank the absolute magnitude number (from greatest to least) of each star (A – E).

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ Least

Or, the absolute magnitude number of each star would be the same. _____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:

E. Ranking Instructions: Rank the distance (from farthest to closest) to each star (A – E) from Earth.

Ranking Order: Farthest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ Closest

Or, the distance to each star from Earth would be the same. _____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:
