

# Worksheet: Brightness Magnitude



**Q1:** Gliese 832 is a star with an absolute magnitude of 10.2. The star is located 16.2 light-years away from Earth. What is the apparent magnitude of Gliese 832? Give your answer to 3 significant figures.

A 9.15

B 8.68

C 10.4

D 13.8

E 11.3

**Q2:** Alpha Centauri B is a star with an apparent magnitude of 1.34, as viewed from Earth. Epsilon Eridani is a star with an apparent magnitude of 3.73, as viewed from Earth. Which star appears brighter as viewed by an astronomer on Earth?

A Alpha Centauri B

B Epsilon Eridani

**Q3:** Luyten 726-8 B is a star located 2.70 pc away from Earth with an apparent magnitude of 13.0. What would the star's apparent magnitude be if it were located 5.00 pc away? Give your answer to 3 significant figures.

A 17.3

B 15.8

C 10.2

D 11.7

E 14.3

**Q4:** Teegarden's Star has an apparent magnitude of 15.1 and an absolute magnitude of 17.2. How far away from Earth is Teegarden's Star? Give your answer in kilometers to 3 significant figures.

A  $2.13 \times 10^{15}$  km

B  $8.12 \times 10^{14}$  km

C  $7.33 \times 10^{15}$  km

D  $4.46 \times 10^{13}$  km

E  $1.17 \times 10^{14}$  km

**Q5:** If a star had an absolute magnitude of 3.44 and were located at a distance of 28.9 parsecs from Earth, what would its apparent magnitude be? Give your answer to 3 significant figures.

- A 3.18
- B 4.75
- C 8.31
- D 5.74
- E 1.14

**Q6:** The table shows the apparent magnitudes of several nearby stars and how far each star is away from Earth.

Star	Apparent Magnitude	Distance (pc)
Kruger 60 A	9.79	4.02
Luyten 726 – 8 A	12.5	2.70
Lacaille 8,760	6.67	3.99

Which star would appear the brightest if they were all viewed from the same distance?

- A Luyten 726 – 8 A
- B Lacaille 8760
- C Kruger 60 A

**Q7:** The table gives the apparent magnitudes of several nearby stars.

Star	Epsilon Indi	Gliese 1	Procyon A	Ross 154	Sirius B
Apparent Magnitude	4.69	8.55	0.38	10.43	8.44

Which star appears dimmest as viewed from Earth?

- A Epsilon Indi
- B Gliese 1
- C Sirius B
- D Procyon A
- E Ross 154

**Q8:** A star located 8.2 light-years away from Earth has an apparent magnitude of 3.09. What is the absolute magnitude of the star? Give your answer to 3 significant figures.

- A 0.09
- B 2.66
- C 6.09
- D 3.09
- E 3.52

**Q9:** 61 Cygni A is a star with an apparent magnitude of 5.21. The star is 3.50 parsecs from Earth. What is the absolute magnitude of 61 Cygni A? Give your answer to 3 significant figures.

A 7.49

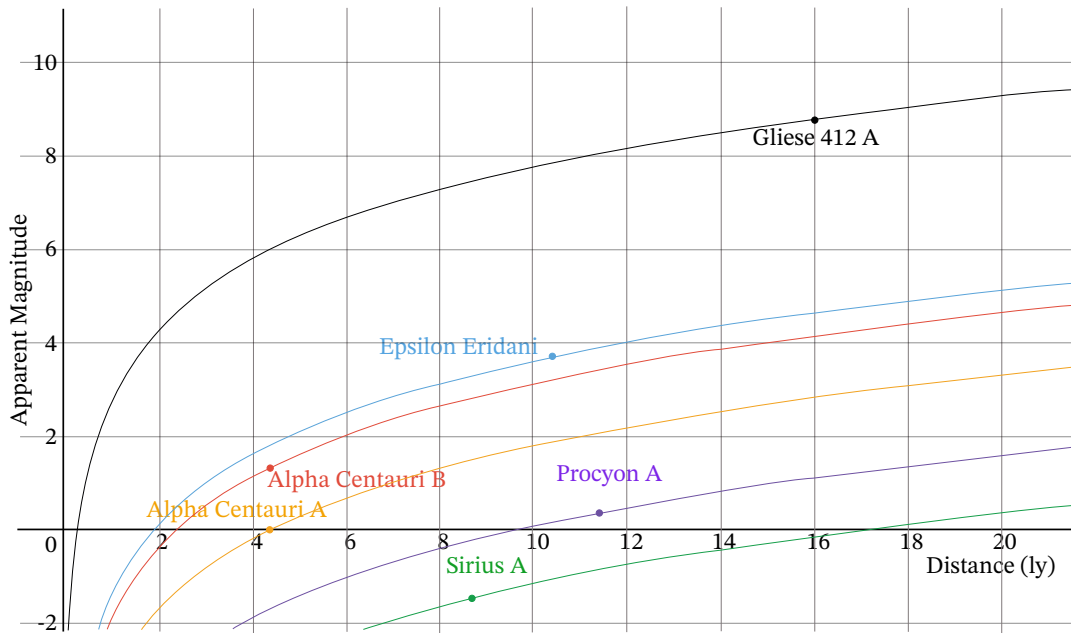
B 6.35

C 8.85

D 2.93

E 4.99

**Q10:** The graph shows how the apparent magnitude of six stars varies with distance away from Earth. The apparent magnitude of each star as measured from Earth, as well as its distance away from Earth, is marked on each line. Which star would appear dimmest when viewed from a distance of 14 ly?



- A Alpha Centauri A
- B Gliese 412 A
- C Epsilon Eridani
- D Procyon A
- E Sirius A

**Q11:** A star observed from Earth has an apparent magnitude of 15.5. Its absolute magnitude is found to be 2.70. What is the distance between Earth and the star? Give your answer in parsecs to 3 significant figures.

A 11,800 pc

B 0.0275 pc

C 1,320,000 pc

D 4.37 pc

E 3,630 pc