

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

# Star Magnitude

Rules to follow:

- A negative number is brighter than a positive number.
- If negative, higher numbers are brighter.
- If positive, lower numbers are brighter.

**Part I:** *Rearrange the following celestial objects from the brightest to the dimmest.*

(Brightest)	1.	5.	9.	
	2.	6.	10.	
	3.	7.	11.	
	4.	8.	12.	(Dimmest)

**Celestial objects:** Altair (0.08), Full moon (-12.6), Mars (-2.5), Sirius (-1.43), Capella (0.09), Rigel (0.15), Betelgeuse (0.42), Venus (-4.4), Jupiter (-2.8), Sun (-26.8), Vega (0.04), Fomalhaut (1.25)

**Part II:** Use the data for the stars on the table to answer the following questions:

- 1) Which star appears brightest?
- 2) Is this star actually the brightest?
- 3) Which star is actually brightest?
- 4) Does the farthest away star appear the dimmest?
- 5) Which star appears dimmest?
- 6) Which star is actually dimmest?
- 7) How many of these stars *appear to be* brighter than Betelgeuse?
- 8) How many actually *are* brighter than Betelgeuse?

Star Name	Distance From Earth (light years)	Apparent Magnitude	Absolute Magnitude
Rigel	800	0.1	-8.1
Star A	76	8.1	12.4
Sirius	13	-1.4	1.5
Krugar A	34	9.7	11.7
Betelgeuse	640	0.4	-4.5
Pollux	42	1.2	1.0
Vega	16	0.0	0.5
Arcturus	26	-0.1	-0.3
Star X	?	1.8	1.8

**Part III:** Use your notes on temperature (and your brain) to answer the following:

- 9) If Sirius is a blue star, what is its temperature?
- 10) Star A is the coolest star on the data table. What color do you think it would be?
- 11) Vega is a white star, and Betelgeuse is a red star. Which is hotter?
- 12) The distance for Star X is not given. How far away do you think it is from Earth?
- 13) Like most stars, Sirius is made of what two gases?
- 14) If Betelgeuse is the biggest star on the data table, then why do you think Rigel has greater absolute magnitude?
- 15) How can a star with a greater mass (Rigel) be smaller in size than one with less mass (Betelgeuse)?