Name: _____

Date: _____ Class: _____

How Big is That Star?

Stellar Dimensions

Summary

You are going to be examining the sizes of stars. As a warm-up to measuring stars in a binary system, take a look at the data below showing the sizes of selected stars in our galaxy. Use the data in this table to fill out the rest of this worksheet.

Dimensions of Typical Stars

	Star	Radius (Solar radii)	Density (Solar density)	Mass (Solar mass)
Supergiants	Antares	776	0.00000004	20
	Beta Lyrae	19.2	0.0014	9.7
	Betelgeuse	1000	0.0000005	10
	Deneb	96	0.00002	20
	Gamma Cygni	67	0.00007	20
	Rigel	78	0.00004	20
Giants	Aldebaran	87	0.000006	4
	Arcturus	35	0.00018	8
	Beta Pegasi	40	0.00014	9
	Capella	13	0.00096	2.1
Main Sequence Stars	Our Sun	1.0	1.0	1.0
	Altair	1.6	0.415	1.7
	Barnard's Star	0.15	53.3	0.18
	61 Cygni A	0.7	1.69	0.58
	Hadar	22	0.0023	25
	Krueger 60	0.35	6.30	0.27
	MU-1 Scorpii	5.2	0.1000	14
	Procyon A	2.6	0.102	1.8
	Sirius A	1.9	0.335	2.3
White Dwarfs	40 Erdani B	0.018	71,000	0.41
	Sirius B	0.022	90,000	0.99
	Von Maanen's Star	0.007	47,000	0.14

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Answer the following

List the stars in order based on the size of their radius, from smallest to largest.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

18.

19.

20.

21.

22.

Now, next to each of the names in your list above, write the ratio of that star's radius to mass (measured in Suns).

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Find at least four of those stars on a constellation chart (provided by your teacher). List those five stars here along with saying which constellation they are in and make a sketch of the constellation with the location of the star.

Explain the general relationship between radius and mass among this list of stars.