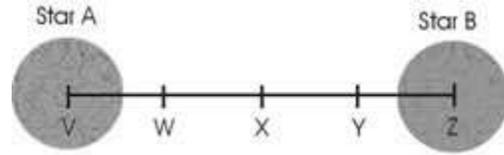


Name: \_\_\_\_\_

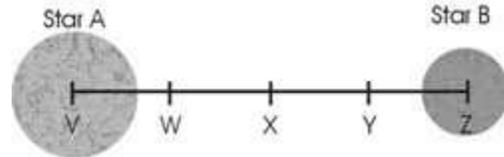
## Eclipsing Binary Simulator – Pretest

Answer the following questions.

Question 1: If Star A has a mass of  $3 M_{\odot}$  and star B has a mass of  $1 M_{\odot}$ , the center of mass will be at which letter position? \_\_\_\_\_



Question 2: If Star A has a mass of  $3 M_{\odot}$  and the center of mass is at position **W**, what is the mass of star B? \_\_\_\_\_  $M_{\odot}$



Question 3: A red star would have a surface temperature of ...

- a) 3,000 K.
- b) 10,000 K.
- c) 4,500 K.
- d) 6,000 K.
- e) 20,000 K.

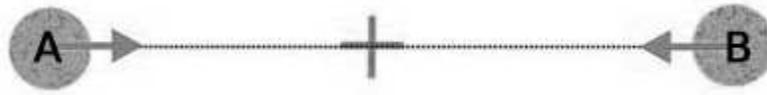
Question 4: If a yellow giant star has the same surface temperature as the sun ( $T = T_{\odot}$ ) and a radius twice that of the sun ( $R = 2R_{\odot}$ ), what will its luminosity be?

\_\_\_\_\_  $L_{\odot}$

Question 5: A grandfather clock starts exactly at noon. Imagine that you make measurements of the height of the tip of the minute hand and create a periodic graph of your data (much like a light curve). If you make an observation at 1:30 pm, what would be the phase of this observation?

- a) 0.000
- b) 0.250
- c) 0.333
- d) 0.500
- e) 0.750

Question 6: The binary system below has an inclination of  $90^\circ$ . What type of eclipse will be seen when the *orange* star A in front of the *yellow* star B?



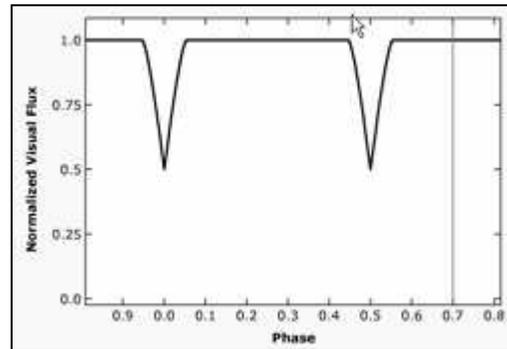
- a) a deep, flat eclipse
- b) a shallow, pointed eclipse
- c) a deep, pointed eclipse
- d) a shallow, flat eclipse

Question 7: A binary system is most likely to be an eclipsing binary if it has ...

- a) small inclination and small stellar radii.
- b) large inclination and small stellar radii.
- c) small inclination and large stellar radii.
- d) large inclination and large stellar radii.

Question 8: From the eclipsing binary light curve shown the right, one can conclude that the stars have circular orbits and ...

- a) the same surface temperatures and radii.
- b) different surface temperatures and different radii.
- c) the same radii but different surface temperatures.
- d) the same surface temperatures but different radii.



Question 9: From the eclipsing binary light curve shown to the right, one can conclude that the stars ...

- a) have a small separation compared to their radii.
- b) have a large separation compared to their radii.

