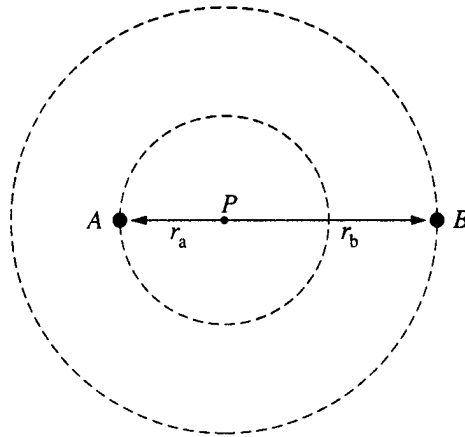


Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_



Two stars, A and B, are in circular orbits of radii  $r_a$  and  $r_b$ , respectively, about their common center of mass at point P, as shown above. Each star has the same period of revolution T.

Determine expressions for the following three quantities in terms of  $r_a$ ,  $r_b$ , T, and fundamental constants.

- The centripetal acceleration of star A
- The mass  $M_b$  of star B
- The mass  $M_a$  of star A
- Determine an expressions for the angular momentum of the system about the center of mass in terms of  $M_a$ ,  $M_b$ ,  $r_a$ ,  $r_b$ , T, and fundamental constants.