

8. Using  $F = GmM/r^2$ , we find that the topmost mass pulls upward on the one at the origin with  $1.9 \times 10^{-8}$  N, and the rightmost mass pulls rightward on the one at the origin with  $1.0 \times 10^{-8}$  N. Thus, the  $(x, y)$  components of the net force, which can be converted to polar components (here we use magnitude-angle notation), are

$$\vec{F}_{\text{net}} = (1.0 \times 10^{-8}, 1.9 \times 10^{-8}) \implies (2.1 \times 10^{-8} \angle 61^\circ) .$$

The magnitude of the force is  $2.1 \times 10^{-8}$  N.