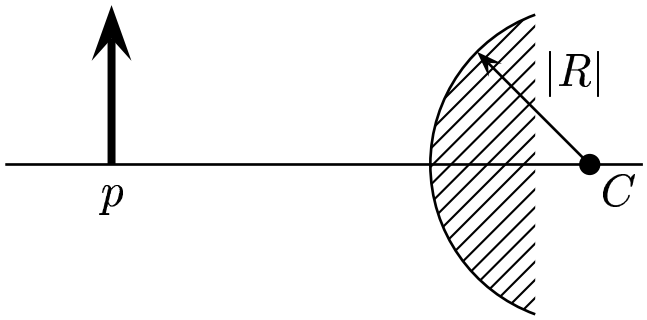
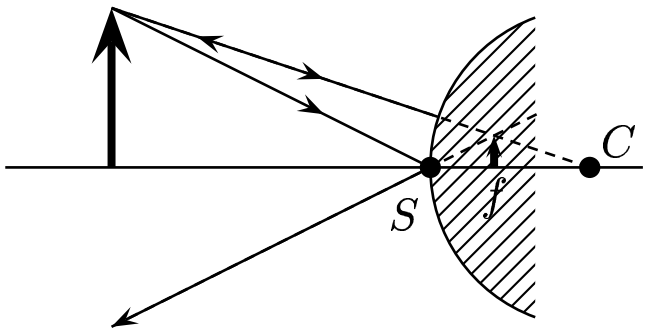
Consider a convex mirror with radius $|R| = 1\,\mathrm{m}$. The object distance $p = 1\,\mathrm{m}$.



Locate the image distance q.
Determine the magnification M of the image.

A) $q = 1\,\mathrm{m}$ and $M = 1$.
B) $q = 1\,\mathrm{m}$ and $M = -1$.
C) $q = -\frac{1}{3}\,\mathrm{m}$ and $M = \frac{1}{3}$.
D) $q = -\frac{1}{3}\,\mathrm{m}$ and $M = -\frac{1}{3}$.

For the convex mirror, R being the coordinate of center of the spherical surface, it is negative, *i.e.* $R = -|R|$. $\frac{1}{q} = \frac{2}{R} - \frac{1}{p} = -\frac{2}{|R|} - \frac{1}{p} = -3$, $q = -\frac{1}{3}$.
So the magnification $M = -\frac{q}{p} = \frac{1}{3}$.



Answer **C**.