10-2)

P = 2 seconds
For a physical pendulum, $P = 2\pi[I/mgD]^{1/2}$

The moment of inertia for a hoop of mass M and Radius R about an axis passing through its center and perpendicular to the plane of the hoop is $I_{CM} = MR^2$.
Use the parallel axis theorem to find the moment about an axis through the edge of the hoop:
$I_{EDGE} = I_{CM} + Mh^2$ where h = R
$I_{EDGE} = MR^2 + MR^2 = 2MR^2$
D, the distance from the point of suspension to the center of mass, is then R.
So,
$P = 2\pi[I/mgD]^{1/2} = 2\pi[2MR^2/MgR]^{1/2} = 2\pi[2R/g]^{1/2}$
$P^2 = 8\pi^2 R/g$
$R = P^2 g/8\pi^2 = 2^2 *10/8\pi^2 = $ 0.496 m