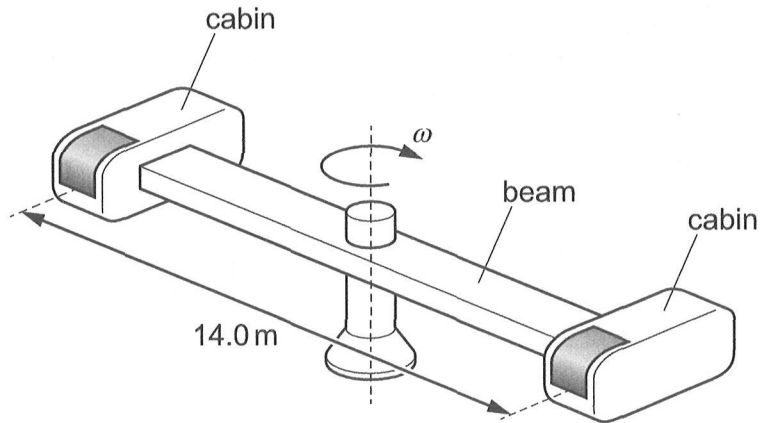


- 11 As part of their training, astronauts are subjected to large forces by being placed in cabins at either end of a horizontal beam and rotated about a vertical axis.



The centres of the cabins are 14.0 m apart. The astronauts experience a centripetal acceleration of  $20g$ .

What is the angular velocity  $\omega$  of the astronauts?

- A  $1.2 \text{ rad s}^{-1}$       B  $1.7 \text{ rad s}^{-1}$       C  $3.7 \text{ rad s}^{-1}$       D  $5.3 \text{ rad s}^{-1}$

12 A planet has mass  $M$  and radius  $R$ .