

INTERNATIONAL SPACE STATION

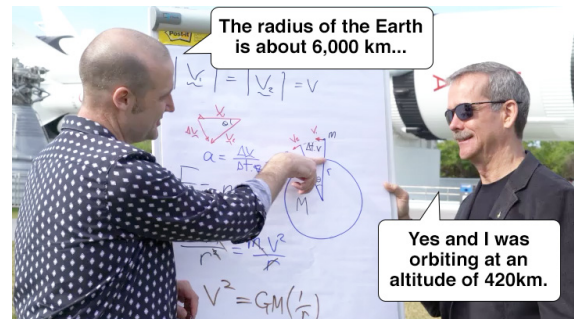
Mathematician Matt Parker and astronaut Chris Hadfield derived this equation for the speed of any object in orbit:

$$v^2 = GM \left(\frac{1}{r} \right)$$

v is the speed of the object in ms^{-1}
 r is the distance from the centre of the planet **in metres**

$$G = 6.7 \times 10^{-11} m^3 kg^{-1} s^{-2}$$

$$\text{Mass of Earth (M)} = 6.0 \times 10^{24} kg$$



In the video, Chris claims the International Space Station moves at about 8km per second. Can you show that that is approximately correct?

BONUS: Chris Hadfield said it takes 92 minutes for the ISS to orbit the Earth. How could you double-check that? (Hint: You may need a more accurate value for the radius of the Earth).