ASG v1 Ex 16.1 (Kepler's 3rd law)

The orbital period of the ISS is $T_{ISS} = 91$ min.

The orbital period of the moon is $T_m = 38{,}880$ min.

The distance of the ISS from the center of the earth is $a_{ISS} = 6765$ km

of the moon from the center of the earth is $a_{moon} = 385{,}000$ km.

So $$\frac{T_{ISS}}{T_m} = \frac{91}{38880} = 0.0023$$

and $$\left(\frac{a_{ISS}}{a_m}\right)^{3/2} = \left(\frac{6765}{385{,}000}\right)^{3/2} = 0.0023$$

So Kepler's 3rd law of planetary motion also applies to man-made satellites. The reason was later explained by Newton in his Principia (1687).