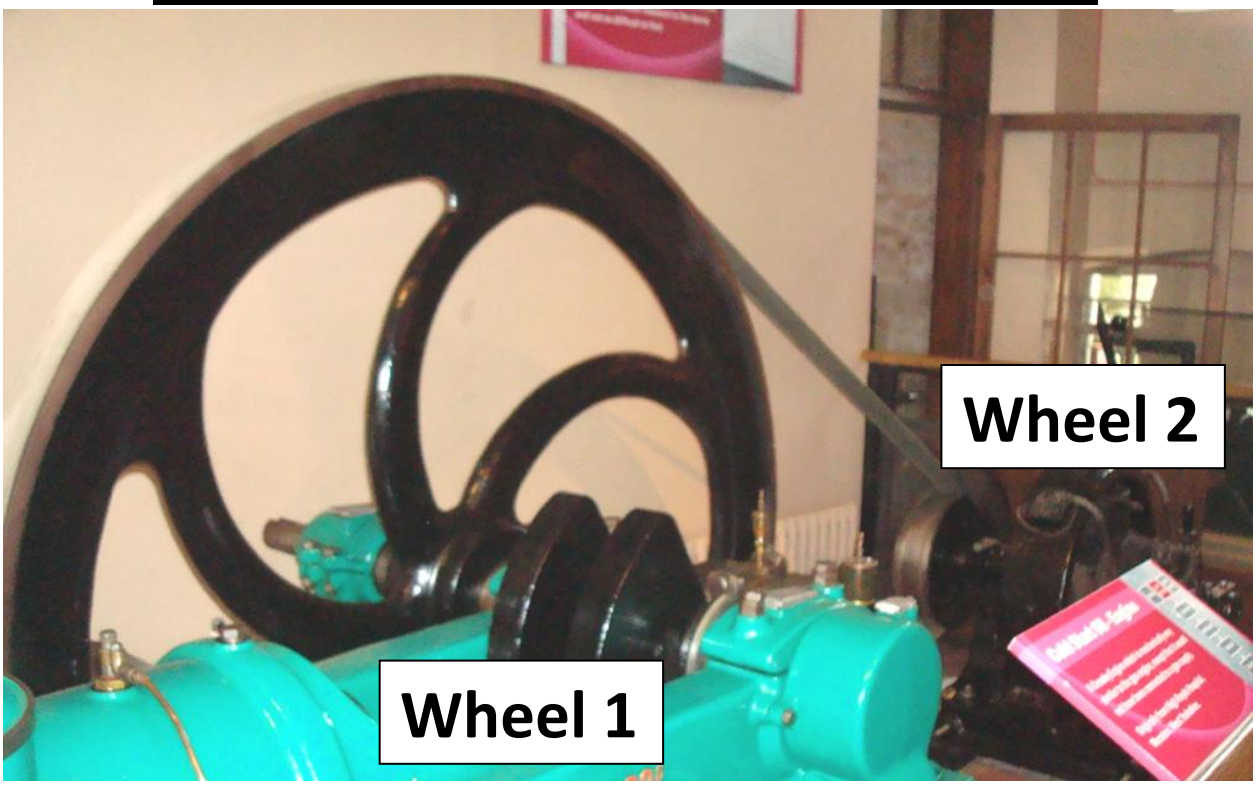
Warwick Castle Mill – ratio and proportion



*Wheel 2 is attached to wheel 1 by a belt, and for every **3 turns** of the large wheel makes, the small wheel goes round exactly **16 times**.*

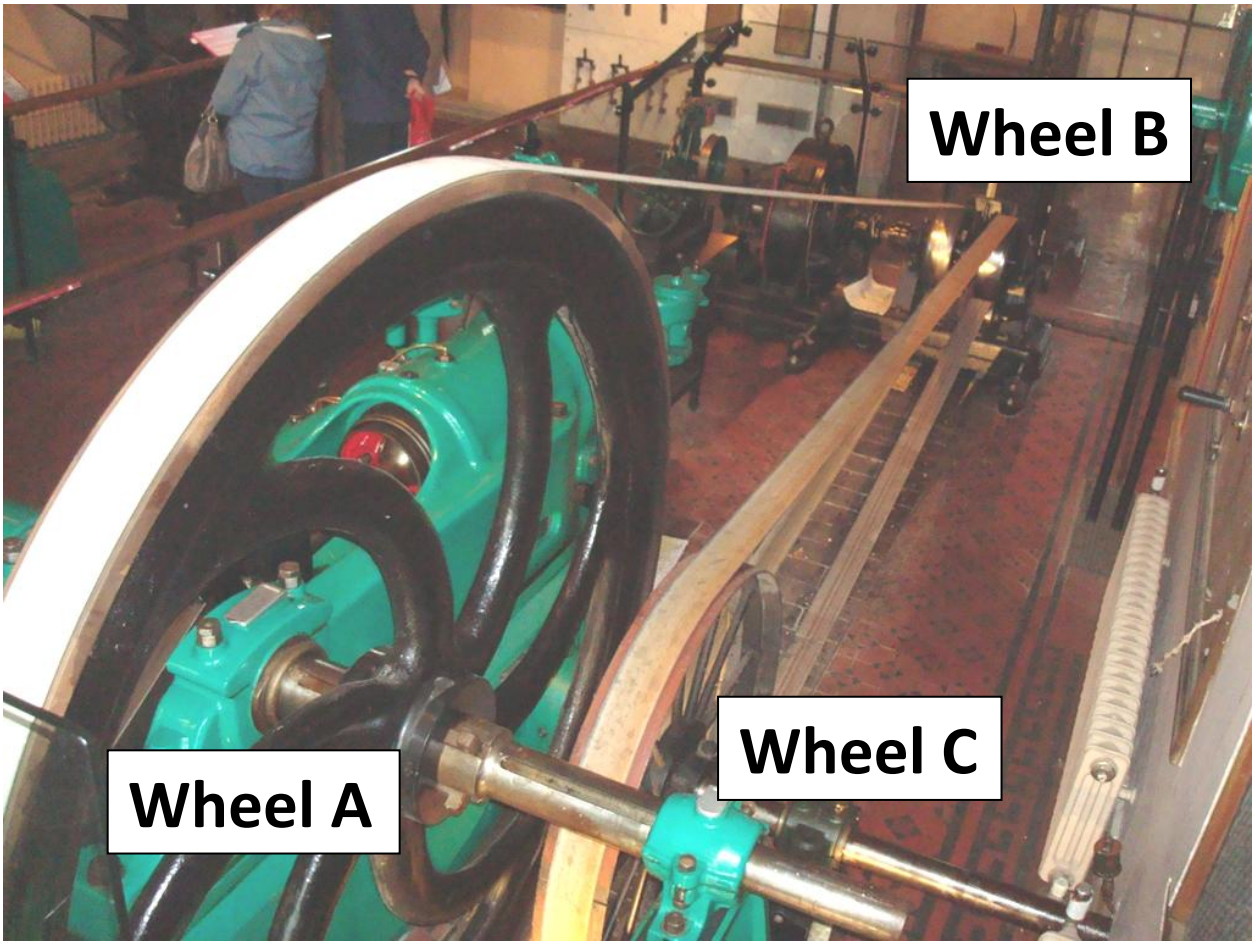
1. If it takes the large wheel 4 seconds to complete a full turn, how long will it take the small wheel to complete a full turn?

2. What is the RPM (revolutions per minute) of the large wheel at this speed? What about the small wheel?

3. Write down the ratio of seconds per turn for the wheels (wheel 1 : wheel 2)

4. Write down the ratio of RPM for the wheels (wheel 1 : wheel 2)

5. Compare these two ratios. What do you notice? Why is this the case?



*The wheels A, B and C have radii of **0.8m**, **0.2m** and **0.3m** respectively.*

Write down the following ratios, simplifying where necessary:

Wheel radius (wheel A : wheel B : wheel C)

Wheel circumference (wheel A : wheel B : wheel C)

Time taken to complete one revolution (wheel A : wheel B : wheel C)

RPM (revolutions per minute) (wheel A : wheel B : wheel C)

How rapidly must wheel A be turning for wheel C to be running at a rate of 100rpm? Give your answer in rpm.