

## The JETS Challenge

Provided by Dave Meredith, Associate Professor,  
Penn State University-Fayette

### Challenge 56 – The C&O Canal Challenge

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**Problem:**

*You are peddling the C&O Canal for 161 miles from Cumberland, MD to Washington, DC on a bicycle with 26-inch wheels and a 2.5 : 1 gear train. This means that the tire rotates 2.5 times for each peddle revolution.*

**What is the maximum number of peddle revolutions required?**

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**Solution:**

$$x \text{ inches} = 161 \text{ miles} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} = 10,200,960 \text{ inches}$$

$$c = 2\pi r = 26\pi$$

$$26\pi \times 2.5 \approx 204.20 \text{ inches per peddle revolution}$$

$$\frac{10,200,960}{204.20} = 49,955 \text{ times}$$