

Work is difference between the first and the second value of energy.

$$A = \Delta E$$

E – energy

A – work

$$E = \frac{I \cdot \omega^2}{2}, \text{ where}$$

I – Moment of inertia;

ω – Angular velocity.

$$I = 30 \frac{\text{kg}}{\text{m}^2}, \quad \omega = 10 \text{ rotation per minute} = 1.05 \frac{\text{rad}}{\text{s}}$$

$$E_1 = \frac{30 \cdot 1.05^2}{2} = 15.75 \text{ J}$$

If we increase velocity, we will have:

$$\omega = 5.25 \frac{\text{rad}}{\text{s}}$$

$$E_2 = \frac{30 \cdot 5.25^2}{2} = 78.75 \text{ J}$$

$$A = 78.75 - 15.75 = 63 \text{ J} - \text{the work done in increasing wheels speed}$$