1. A rotating large stone wheel may be used to sharpen knives. The wheel may be thought of as a cylindrical disc with a radius of .375m. A constant tangential force of 275N causes the wheel to have an angular acceleration of .85 radians per second. What is the mass of the wheel?

$r = 0.375\,m$ $F = 275\,N$ $\beta = 0.85\frac{rad}{s^2}$	*Solution.* We can write the moment equation for rotation of the wheel: $I \cdot \beta = F \cdot r$, where $I = \frac{mr^2}{2}$ is the moment f inertia of a uniform wheel during the rotation around its axis.
$m - ?$	

$\frac{mr^2}{2} \cdot \beta = F \cdot r$, so, the mass of the wheel is $\boxed{m = \frac{2F}{\beta r}}$.

Let check the dimension: $[m] = \frac{N}{\frac{rad}{s^2} \cdot m} = \frac{kg \cdot \frac{m}{s^2}}{\frac{m}{s^2}} = kg$.

Let evaluate the quantity: $m = \frac{2 \cdot 275}{0.85 \cdot 0.375} = 1725(kg)$.

Answer: $1725\,kg$.