**13.29.** **Model:** The triangle is a rigid body rotating about an axis through the center.
**Visualize:** Please refer to Figure Ex13.28. Each 200 g mass is a distance $r$ away from the axis of rotation, where $r$ is given by

$$\frac{0.20 \text{ m}}{r} = \cos 30° \Rightarrow r = \frac{0.20 \text{ m}}{\cos 30°} = 0.2309 \text{ m}$$

**Solve:** The moment of inertia of the triangle is $I = 3 \times mr^2 = 3(0.200 \text{ kg})(0.2309 \text{ m})^2 = 0.0320 \text{ kg m}^2$. The frequency of rotation is given as 5.0 revolution per s or $10\pi$ rad/s. The rotational kinetic energy is

$$K_{\text{rot.}} = \frac{1}{2}I\omega^2 = \frac{1}{2}(0.0320 \text{ kg m}^2)(10.0\pi \text{ rad/s})^2 = 15.8 \text{ J}$$