PHYS 201 SFQ on Rot Dynamics Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| 1. | 2. |  3. | 4. | 5. | Newton’s 2nd Law |
| $$θ=\overbar{ω} t$$ | $$θ=\frac{1}{2}\left(ω\_{0}+ω\right)t$$ | $$ω=ω\_{0}+at$$ | $$θ=ω\_{0}t+\frac{1}{2}at^{2}$$ | $$ω^{2}=ω\_{0}^{2}+2αx$$ | $$\sum\_{}^{}\vec{τ}=I\vec{α}$$ |

Force of friction:  torque = τ = LA·F 

A stationary bicycle is raised off the ground, and its front wheel (*m*=1.3 kg) is rotating at an angular velocity of 13.1 rad/s (see the drawing). The front brake is then applied for 3.0 s, and the wheel slows down to 3.7 rad/s. Assume that all the mass of the wheel is concentrated in the rim, the radius of which is 0.33 m. The coefficient of kinetic friction between each brake pad and the rim is μk=0.85. What is the magnitude of the normal force that *each* brake pad applies to the rim?

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|  c09/nw0365-n.gif |