

PHYSICS 201 TEST 2 EQUATIONS

Newton's 2nd Law

$$g = 9.81 \text{ m/s}^2$$

$$\vec{F}_{\text{net}} = m\vec{a}$$

$$W = mg$$

Frictional Force Special Relationship

$$f = \mu N = \mu F_N$$

Uniform Circular Motion (Centripetal a and F)

$$a = \frac{v^2}{R}$$

$$F = m \frac{v^2}{R}$$

Universal Law of Gravitation

$$F = G \frac{m_1 m_2}{r^2}$$

$$G = 6.67 \times 10^{-11} \text{ N} \cdot \text{m}^2/\text{kg}^2$$

Satellite Motion (Things in orbit)

$$v = \sqrt{\frac{GM}{R}}$$

M = mass of planet

R = orbital radius

Banked Curves

$$\theta = \tan^{-1} \frac{v^2}{gR}$$