"The Knowledge" FOR MECHANICS MINOR - Answers

The equation for F_{max} in terms of the coefficient of friction

$F_{max} = \mu R$

The meaning of a couple

A set of forces with zero resultant force but a non-zero total moment

The definition of Work Done by a force

Work Done = Force x Displacement in the direction of that force

The Work-Energy Principle (WEP)

Initial Energy + Work Done = Final Energy

The two definitions of Power

$P = Fv = \frac{WD}{t}$

The definition of Impulse

Impulse $= Ft$

The Principle of Impulse

Impulse $= mv - mu$ (change in momentum)

The definition of the coefficient of restitution, its bounds, and the significance of it attaining these bounds

$e = \frac{\text{separating speed}}{\text{approach speed}}$, $0 \leq e \leq 1$.

When $e = 1$, the collision is perfectly elastic and no kinetic energy is lost.

When $e = 0$, the collision is inelastic and the bodies coalesce.