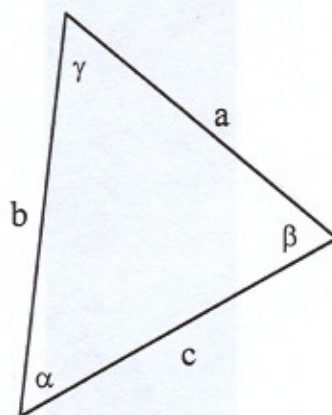


FORMULAS – GE 226 FINAL EXAM – APRIL 2004

$$\vec{v}_B = \vec{v}_A + \vec{\omega} \times \vec{r}_{B/A}$$

$$\vec{a}_B = \vec{a}_A + \vec{\alpha} \times \vec{r}_{B/A} - \omega^2 \vec{r}_{B/A}$$



Law of Sines:

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$

Law of Cosines:

$$c^2 = a^2 + b^2 - 2ab \cos \gamma$$

MASS MOMENT OF INERTIA FORMULAE

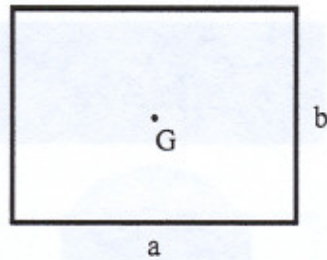
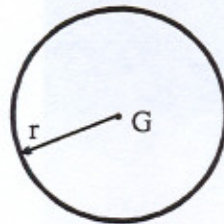
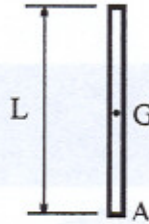


Plate or Block of mass  $m$ :  $I_G = \frac{1}{12} m(a^2 + b^2)$

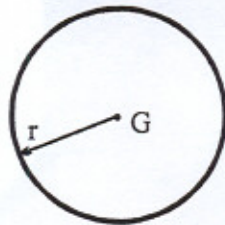


Disk or Cylinder of mass  $m$  and radius  $r$ :  $I_G = \frac{1}{2} mr^2$



Slender Rod of mass  $m$  and length  $L$ :  $I_G = \frac{1}{12} mL^2$

$$I_A = \frac{1}{3} mL^2$$



Sphere of mass  $m$  and radius  $r$ :  $I_G = \frac{2}{5} mr^2$

COEFFICIENT OF RESTITUTION FORMULA

$$e = \frac{(v_B)_2 - (v_A)_2}{(v_A)_1 - (v_B)_1}$$