

MEEG 4003 Quiz #8

1. ⑩ Define the symbols in the formulas

$$\left(\dot{\mathbf{Q}}\right)_{Axyz} = \dot{Q}_x \mathbf{i} + \dot{Q}_y \mathbf{j} + \dot{Q}_z \mathbf{k}$$

2. ⑩ Derive the **addition theorem for angular velocities** for bodies A , B , and C . *Define all symbols.*
3. ⑩ Derive the **addition theorem for angular accelerations** for bodies A , B , and C . *Define all symbols.*
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2. $\boldsymbol{\omega}_{A/B} = \boldsymbol{\omega}_{A/C} + \boldsymbol{\omega}_{C/B}$

OR

$$\boldsymbol{\omega}_A = \boldsymbol{\omega}_{A/B} + \boldsymbol{\omega}_{B/C} + \boldsymbol{\omega}_C$$

3. $\boldsymbol{\alpha}_{A/B} = \boldsymbol{\alpha}_{A/C} + \boldsymbol{\alpha}_{C/B} + \boldsymbol{\omega}_{C/B} \times \boldsymbol{\omega}_{A/C}$

OR

$$\boldsymbol{\alpha}_A = \boldsymbol{\alpha}_{A/B} + \boldsymbol{\alpha}_{B/C} + \boldsymbol{\alpha}_C + \boldsymbol{\omega}_B \times \boldsymbol{\omega}_{A/B} + \boldsymbol{\omega}_C \times \boldsymbol{\omega}_{B/C}$$