

PROB. 15-2

FIND  $t$ ,  $\theta$  AND  $\ddot{\theta}$  WHEN  $\dot{\theta} = 0$

$$\theta = t^3 - 9t^2 + 15t$$

$$\dot{\theta} = 3t^2 - 18t + 15 = 0$$

$$t = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$t = \frac{-(-18) \pm \sqrt{18^2 - 4(3)(15)}}{2(3)} = 3 \pm 2$$

$$t = 1 \text{ AND } 5^s$$

$$\text{FOR } t = 1^s,$$

$$\theta(1) = (1)^3 - 9(1)^2 + 15(1) = 7 \text{ RAD}$$

$$\ddot{\theta}(1) = 6(1) - 18 = -12 \frac{\text{RAD}}{s^2}$$

$$\text{FOR } t = 5^s,$$

$$\theta(5) = (5)^3 - 9(5)^2 + 15(5) = -25 \text{ RAD}$$

$$\ddot{\theta}(5) = 6(5) - 18 = 12 \frac{\text{RAD}}{s^2}$$