10-6

$\theta(t) = 2.0 + 4.0t^2 + 2.0t^3$

angular velocity $\omega(t) = \frac{d\theta}{dt} = 8.0t + 6.0t^2$

angular acceleration $\alpha(t) = \frac{d\omega}{dt} = \frac{d^2\theta}{dt^2} = 8.0 + 12.0t$

a) $\theta(t=0) = 2.0$ radians

b) $\omega(t=0) = 0$ radians/second

c) $\omega(t=4) = 8(4) + 6(4)^2 = 128$ radians/second

d) $\alpha(t=2) = 8.0 + 12.0(2) = 32$ radians/second^2

e) no its angular acceleration depends on time