

20. **REASONING AND SOLUTION**

a. $\theta = \frac{1}{2}(\omega + \omega_0)t = \frac{1}{2}(1420 \text{ rad/s} + 420 \text{ rad/s})(5.00 \text{ s}) = \boxed{4.60 \times 10^3 \text{ rad}}$

b. $\alpha = \frac{\omega - \omega_0}{t} = \frac{1420 \text{ rad/s} - 420 \text{ rad/s}}{5.00 \text{ s}} = \boxed{2.00 \times 10^2 \text{ rad/s}^2}$