## Problem 7.5

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Note that $2.51\text{x}10^4$ rev/min is the same as:

$$(2.51\text{x}10^4 \text{ rev/min})(2\pi \text{ rad/rev})\left(\frac{1 \text{ min}}{60 \text{ sec}}\right) = 2628 \text{ rad/sec}$$

So:

$$\omega_2 = \omega_1 + \alpha(\Delta t)$$
$$\Rightarrow \quad \alpha = \frac{\omega_2 - \omega_1}{\Delta t}$$
$$\Rightarrow \quad \alpha = \frac{(2628 \text{ rad/sec}) - 0}{(3.1 \text{ sec})}$$
$$\Rightarrow \quad = 848 \text{ rad/sec}^2$$



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$$\Delta\theta = \omega_1(\Delta t) + \frac{1}{2}\alpha(\Delta t)^2$$
$$= 0 + .5(858 \text{ rad/sec}^2)(3.1 \text{ sec})^2$$
$$= 4123 \text{ radians}$$