52. According to the sign conventions used in the book, the magnitude of the net torque exerted on the cylinder of mass $m$ and radius $R_2$ is

$$\begin{aligned}\tau_{\text{net}} &= F_1R_2 - F_2R_2 - F_3R_1 \\ &= (6.0\,\text{N})(0.12\,\text{m}) - (4.0\,\text{N})(0.12\,\text{m}) - (2.0\,\text{N})(0.05\,\text{m}) \\ &= 71\ \text{N}\cdot\text{m}\ .\end{aligned}$$

The resulting angular acceleration of the cylinder (with $I = \frac{1}{2}MR^2$ according to Table 11-2(c)) is

$$\begin{aligned}\alpha &= \frac{\tau_{\text{net}}}{I} \\ &= \frac{71\ \text{N}\cdot\text{m}}{\frac{1}{2}(2.0\,\text{kg})(0.12\,\text{m})^2} \\ &= 9.7\ \text{rad/s}^2\end{aligned}$$

and is counterclockwise (which is the positive sense of rotation).