57. Analyzing forces at the knot (particularly helpful is a graphical view of the vector right-triangle with horizontal "side" equal to the static friction force f_s and vertical "side" equal to the weight W_5 of the 5.0-kg mass), we find $f_s = W_5 \tan\theta$ where $\theta = 30°$. For f_s to be at its maximum value, then it must equal $\mu_s W_1 0$ where the weight of the 10 kg object is $W_1 0 = (10\,\text{kg})(9.8\,\text{m/s}^2)$. Therefore,

$$\mu_s W_1 0 = W_5 \tan\theta \quad \Longrightarrow \quad \mu_s = \frac{5}{10}\tan 30° = 0.29 \ .$$