76. (a) We note that $N = mg$ in this situation, so $f_{s,\text{max}} = \mu_s mg = (0.52)(11)(9.8) = 56\,\text{N}$. Consequently, the horizontal force $\vec{F}$ needed to initiate motion must be (at minimum) slightly more than 56 N.

(b) Analyzing vertical forces when $\vec{F}$ is at nonzero θ yields

$$F \sin\theta + N = mg \implies f_{s,\text{max}} = \mu_s \left(mg - F\sin\theta\right) \ .$$

Now, the horizontal component of $\vec{F}$ needed to initiate motion must be (at minimum) slightly more than this, so

$$F\cos\theta = \mu_s \left(mg - F\sin\theta\right) \implies F = \frac{\mu_s mg}{\cos\theta + \mu_s \sin\theta}$$

which yields $F = 59$ N when $\theta = 60°$.

(c) We now set $\theta = -60°$ and obtain

$$F = \frac{(0.52)(11)(9.8)}{\cos(-60°) + (0.52)\sin(-60°)} = 1.1 \times 10^3\ \text{N} \ .$$