72. We take $+x$ uphill for the $m = 1.0$ kg box and $+x$ rightward for the $M = 3.0$ kg box (so the accelerations of the two boxes have the same magnitude and the same sign). The uphill force on m is F and the downhill forces on it are T and $mg\sin\theta$, where $\theta = 37°$. The only horizontal force on M is the rightward-pointed tension. Applying Newton's second law to each box, we find

$$\begin{aligned} F - T - mg\sin\theta &= ma \\ T &= Ma \end{aligned}$$

which are added to obtain $F - mg\sin\theta = (m + M)a$. This yields the acceleration

$$a = \frac{12 - (1.0)(9.8)\sin 37°}{1.0 + 3.0} = 1.53 \text{ m/s}^2 \ .$$

Thus, the tension is $T = Ma = (3.0)(1.53) = 4.6$ N.