33. The free-body diagram is shown below. Let $\vec{T}$ be the tension of the cable and $m\vec{g}$ be the force of gravity. If the upward direction is positive, then Newton's second law is $T - mg = ma$, where a is the acceleration.

Thus, the tension is $T = m(g + a)$. We use constant acceleration kinematics (Table 2-1) to find the acceleration (where $v = 0$ is the final velocity, $v_0 = -12$ m/s is the initial velocity, and $y = -42$ m is the coordinate at the stopping point). Consequently, $v^2 = v_0^2 + 2ay$ leads to

$$a = -\frac{v_0^2}{2y} = -\frac{(-12)^2}{2(-42)} = 1.71 \text{ m/s}^2 .$$

We now return to calculate the tension:

$$\begin{aligned} T &= m(g + a) \\ &= (1600 \text{ kg})\left(9.8 \text{ m/s}^2 + 1.71 \text{ m/s}^2\right) \\ &= 1.8 \times 10^4 \text{ N} . \end{aligned}$$