57. The mass of the bundle is $m = 449/9.8 = 45.8$ kg and we choose $+y$ upward.

(a) Newton's second law, applied to the bundle, leads to

$$T - mg = ma \quad \Longrightarrow \quad a = \frac{387 - 449}{45.8}$$

which yields $a = -1.35$ m/s^2 for the acceleration. The minus sign in the result indicates the acceleration vector points down. Any downward acceleration of magnitude greater than this is also acceptable (since that would lead to even smaller values of tension).

(b) We use Eq. 2-16 (with Δx replaced by $\Delta y = -6.1$ m). We assume $v_0 = 0$.

$$|v| = \sqrt{2a\Delta y} = \sqrt{2(-1.35)(-6.1)} = 4.1 \text{ m/s} .$$

For downward accelerations greater than 1.35 m/s^2, the speeds at impact will be larger than 4.1 m/s.