

65. (a) Since the performer's weight is  $(52)(9.8) = 510$  N, the rope breaks.  
(b) Setting  $T = 425$  N in Newton's second law (with  $+y$  upward) leads to

$$T - mg = ma \implies a = \frac{T}{m} - g$$

which yields  $|a| = 1.6$  m/s<sup>2</sup>.