9.37

Given \( m = 90 \text{ lbm} \), \( h = 10 \text{ ft} \), \( g = 32 \text{ ft/s}^2 \),
\( d = \text{distance to stop} = 1 \text{ ft} \).

Treat the entire body as a particle concentrated at the center of mass.

a) Total distance = 10 feet

b) \( \Delta PE = mgh = 90 \text{lbm}(32 \text{ ft/s}^2)(10 \text{ ft}) \)

\[ = 28,800 \text{ lb-ft} \]

c) All of this work must be absorbed.
\[ W = 28,800 \text{ lb-ft} \]

d) \( W = Fd \), so \( F = \frac{W}{d} = \frac{28,800 \text{ lb-ft}}{1 \text{ ft}} \)

\[ F = 28,800 \text{ lbs} \]
\[ = \frac{mgh}{d} \]
\[ = 10mg = 10 \text{ Wt} \]