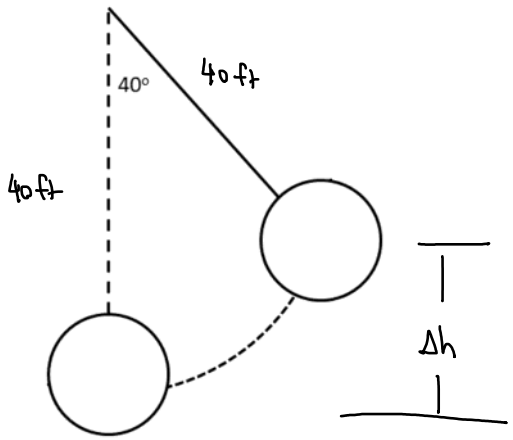
Problem 3

A 2,000 pound wrecking ball hangs from the end of a 40 ft cable. If the wrecking ball is released from an angle of 40 degrees from vertical, what would the expected maximum velocity at the bottom point of the travel path be?



$$\Delta h = 40\cos(40) - 40$$

$$\Delta h = -9.36 \text{ ft}$$

$$W = \Delta KE + \Delta PE$$

$$0 = \frac{1}{2} m V_f^2 + mg\Delta h$$

$$0 = \frac{1}{2}\left(\frac{2000}{32.2}\right) V_f^2 + (2000)(-9.36)$$

$$\boxed{V_f = 24.55 \text{ ft/s}}$$