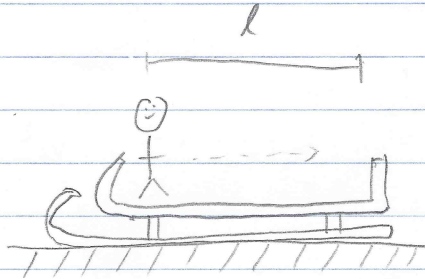


20-P-MOM-DY-11

A large $m = 100$ kg ice sled is in the middle of a frozen lake. A person walks the length of the sled, from one end to the other. The length of the sled is $l = 2$ m. If the person has a mass $m = 60$ kg, determine how far the sledge moves.



Solution:

s = sled p = person

$$m_s s_s = m_p s_p$$

$$m_s x = m_p (l - x)$$

$$x(m_s + m_p) = l m_p$$

$$x = \frac{l m_p}{m_s + m_p} = 0.75 \text{ m}$$