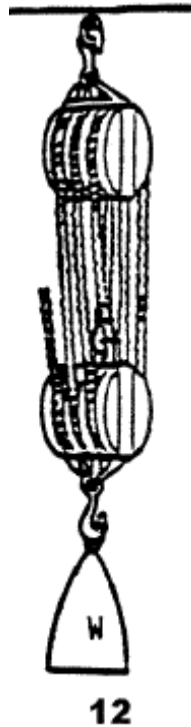


You are using tackle number 12 to lift a weight of 300 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?



- A. 80 lbs.  
Incorrect
- B. 69 lbs  
Correct
- C. 55 lbs  
Incorrect
- D. 50 lbs  
Incorrect

See Solution on the next page

$$\mathbf{F/W = 1 + ((1/10 \times \text{number of sheaves}) / \text{T.M.A.})}$$

*from Merchant Marine Officers' Handbook*

**F** = force (in pounds or tons) to be applied at the hauling end of the block

**W** = weight to be lifted

**T.M.A.** = theoretical mechanical advantage, the ratio of W to F, assuming no friction

$$\mathbf{F/300 \text{ lbs.} = 1 + ((1/10 \times 6) / 7) \quad \text{*** T.M.A.} = 7 \text{ since there are six lines between the two blocks AND the tackle is reeved to advantage (through a moving block)}}$$

$$\mathbf{F = 300 \times (1 + 0.6) / 7}$$

$$\mathbf{F = 68.57 \text{ lbs.}}$$