LOAD DISTRIBUTION: TROLLEY BEAMS & 2-CRANE PICKS
Load Factors & Weight Distribution

Tension in \( s = \frac{\text{length } s}{\text{length } h} \times \text{share of load wt.} \)

\( \frac{s}{h} = \text{Load Factor} \)

Tension in \( A = \frac{6}{3} \times 4,000 \)

Tension in \( A = 8,000 \) #

Known Runs

\( R_1 + R_2 = TS \)

\( \frac{R_2}{TS} = P \)

\( P \times W = \text{Share of Load Wt at A} \)

Legend:

- \( R_1 = \text{Run, Side 1} \)
- \( R_2 = \text{Run, Side 2} \)
- \( TS = \text{Total Span} \)
- \( P = \text{Percentage} \)
- \( W = \text{Weight of Load} \)

Known Weights

\( W_1 + W_2 = TW \)

\( \frac{W_2}{TW} = P \)

\( P \times S = \text{CG in ft. from A} \)

Legend:

- \( W_1 = \text{Weight at A} \)
- \( W_2 = \text{Weight at B} \)
- \( TW = \text{Total Weight} \)
- \( P = \text{Percentage} \)
- \( S = \text{Span} \)
LOAD TRANSFER WITH TROLLEY BEAM

Determine the direct load to the west and east horizontal beams. The weight of the trolley beam has already been deducted. The weight of the trolley, chain falls, rigging and net load combined are represented by the value 4200 lb.

Portion of the load to west beam when lifting load at position 1 = __________ lb
Portion of the load to east beam when lifting load at position 1 = __________ lb
Portion of the load to west beam when lifting load at position 2 = __________ lb
Portion of the load to east beam when lifting load at position 2 = __________ lb
LOAD DISTRIBUTION - TWO HOOK PICK

Determine the combined Center of Gravity for the shaft and gear assembly.

Then, indicate the amount of load to be lifted by each block of the dual hook overhead crane.

1. The CG is__________ft from the west end.
2. The portion of the assembly lifted by the 30 ton hook block is ________lbs.
3. The portion of the assembly lifted by the 5 ton block is__________lbs.
LOAD DISTRIBUTION - **TWO HOOK PICK**

The CG is 12.32’ from the west end. The load will likely set down on the outer edge of the saddle when it lands.

**If the load contacts the east saddle first:**
- Load to the 30 ton hook ______ lbs.
- Load to the east saddle ______ lbs.

**If the load contacts the west end saddle first:**
- Load to the west saddle ___ lbs.
- Load to the 5 ton hook ______ lbs.
WEIGHT DISTRIBUTION

3 ft

5 ft

25 lb pole

125 lb of deer meat

Stinker

Tinker
The deer meat is secured at the center of the 25 lb. pole. So, the total weight is 150 lbs. If Stinker and Tinker started their trek by carrying the deer meat at a distance of 3’ each from the securement point, each would be carrying 75 lbs. Along the way, Tinker gets tired and he slides back along the pole to a 5’ distance, does that change the weight to each brother?

1. Weight to Stinker is _______lbs.

2. Weight to Tinker is_______lbs.
Determine the amount of weight carried by Stinker and Tinker.

1. Portion of pole and meat carried by Tinker is ________ lb.
2. Portion of pole and meat carried by Stinker is ________ lb.