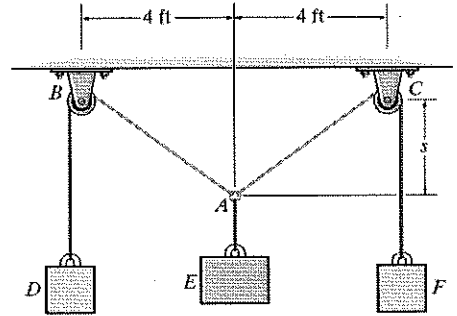




PROBLEM AP-11

GIVEN:

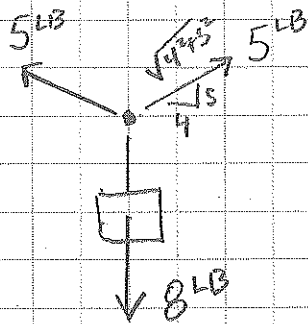
Blocks *D* and *F* weigh 5 lb each and block *E* weighs 8 lb.
Determine the sag *s* for equilibrium. Neglect the size of the pulleys.



REQUIRED:

$$s = \frac{7}{2}$$

SOLUTION:



$$\sum F_y = 0: 8^{lb} - 2 \left(\frac{s}{\sqrt{16+s^2}} \right) (5^{lb}) = 0$$

$$8 = \frac{10s}{\sqrt{16+s^2}}$$

$$8\sqrt{16+s^2} = 10s \quad (12)$$

$$64(16+s^2) = 100s^2$$

$$s^2 = 28.4$$

$$s = 5.33 \text{ FT}$$

$$s = 5.33 \text{ FT}$$