First Pully Problem

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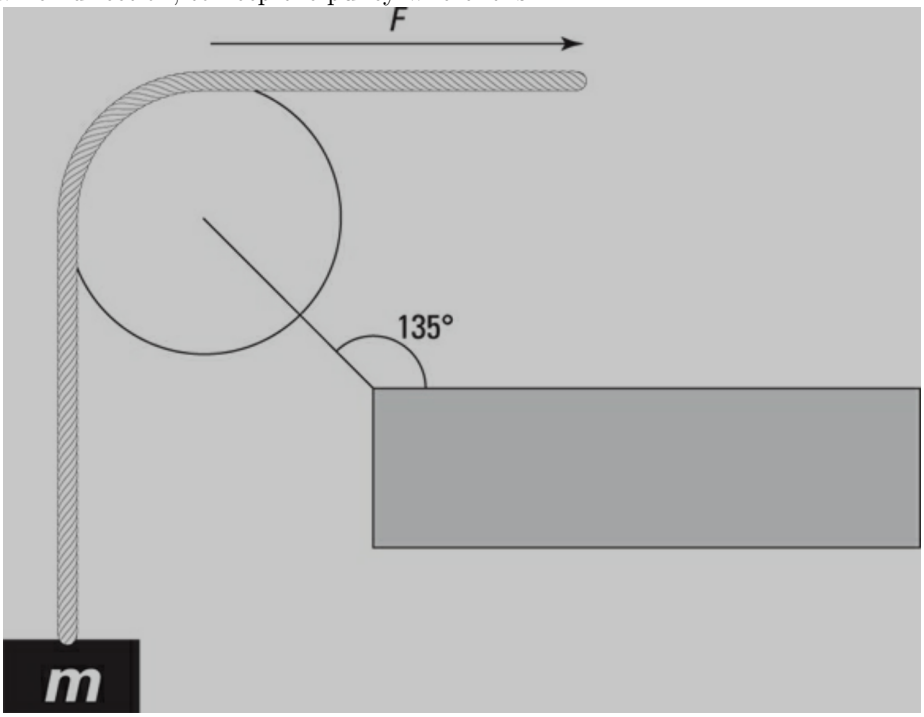
1 Problem

Here, the mass m isn't moving, and you're applying a force F to hold it stationary. Here's the question: What force is the pulley's support exerting, and in which direction, to keep the pulley where it is?



Holzner, Steven. Physics I For Dummies (For Dummies (Math & Science)) (p. 94). Wiley. Kindle Edition.

2 Solution

$$\sum F_y = F_{mass}$$

$$\sum F_x = F_{manmeatpulling}$$

$$\sum F_x = 9.8m$$

$$\sum F_y = -9.8m$$

Puesto que la acceleración del sistema es 0, sigue que las fuerzas tendrían que igualar zero.

$$\sum F_{support} = (-9.8m, 9.8m)$$

$$\sum F_{support} = \sqrt{(-9.8m)^2 + (9.8m)^2}$$

The angle would be the same as the support so 135 degrees.