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Tension in wire

A stationary 80.0 kg object is suspended by a wire over the Earth at an altitude of 10.0 m.

A) What is the Tension in The wire?

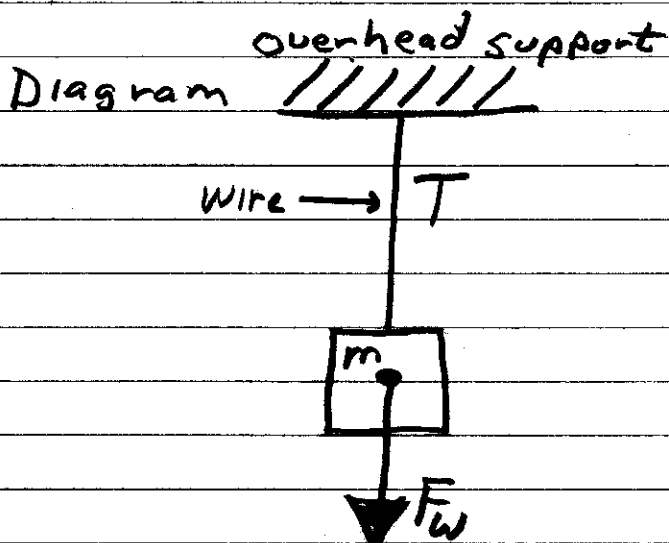
Solution:

The wire only needs to support the weight of the object, since there is no upward or downward acceleration.

Simply determine the weight of the object.

$$\text{weight} = F_w = mg = (80.0 \text{ kg})(9.80 \text{ m/s}^2)$$

$$\text{weight} = 784 \text{ N so Tension} = 784 \text{ N}$$



Note: The altitude was not needed since 10.0 m is rather close to the surface of the Earth