

**Two wires are used to suspend a sign that weighs 500 N. The two wires make an angle of  $100^\circ$  between each other. If each wire is exerting an equal amount of force how much force does each wire exert?**

**Answer 1**

Answer:

The **force** each wire exert will be "**390.62 N**".

The given values are:

**Weight,**

- $mg = 500 \text{ N}$

**Angle,**

- $? = 100^\circ$

As we know,

The **sum of vertical forces** = 0

then,

$$? \sum F_y = 0$$

Now,

$$? F \cos(50) + F \cos(50) = mg$$

By substituting the value, we get

?  $2F \cos(50) = 500$  known

?  $F = (500) / (2 \cos(50))$

?  $F = (500) / (2(0.64))$  unknown

?  $F = 390.62 \text{ N}$  type unknown

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