

Two wires are used to suspend a sign that weighs 500 N. The two wires make an angle of 100° 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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1. [Home](#)
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