In class Static forces

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|  | A 6.20 kg pot of flowers is to be hung using two wires, one horizontally to a wall with tension T1 and the other with tension T2 sloping up at an angle Θ = 40.0 ° tied to an overhang. Find the tension in each wire.  |

FBD: Components:

∑ Fx = 0 = T1 – T2 cosΘ ∑ Fy = 0 = T2 sin Θ – Fw

 T2 cos 40 = T1 Fw = T2 sin 40

 0.766 T2 = T1 (6.2 )(9.8)/0.642 = T2

 ­0.766)(94.6) = T1 = 72.5 N 94.6 = T2

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|  | An automobile engine with a mass of 320 kg is suspended from a ring by a cable. It is held in position by two ropes; one suspended from a pulley on the ceiling and one pulled by a mechanic as shown in the diagram. Determine the tension in each cable. |

FBD: Component diagram:

∑ Fx = T1 sin 10 – T2 sin 80 = 0

T1 sin 10/sin 80 = T2

0.177 T­1 = T2

∑ Fy = 0 = T1 cos 10 – T2 cos 80 – mg

(320 )(9.8) = 0.985 T1 – (0.177T1)(cos 80)

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3136 N = (0.985 – 0.031) T1

3290 N = T1 (0.177)(T1) = T2 = 582