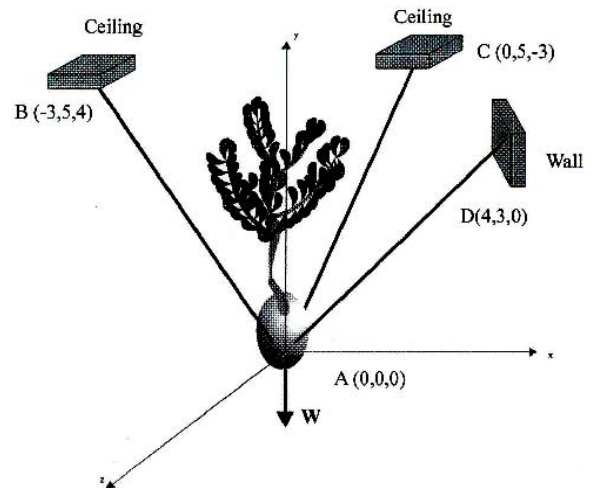NAME:_____Student #_____ GROUP:_____
ENG 1440   Assignment #7 Due: Monday, April 1, 2013, before 5:00 pm

**S2-504** A tree is suspended by two cables from the ceiling at *B* and *C* and by a third cable attached to the wall at *D*. If the maximum safe tension force in any one of the three cables is *1.2 kN*, Determine the maximum weight of the tree that can be supported.

S2-602 Spiderman casts two web lines *HE* and *HD* across two buildings as shown in the figure below. In doing so, he applied a force of *150 N* on line *HE* and *250 N* on line *HD* pulling from point *H*.

Determine:

a) The resultant, **R**, of the two forces acting at the point *H*,
b) The angle, θ, between the two web lines at *H*,
c) The moment of the resultant, **R**, about the point *B*, and
d) The moment of the resultant, **R**, about the line *BM*.

COORDINATES:
B(30,0,50)
E(30,100,50)
D(30,115,0)
H(70,40,-20)
M(95,0,-20)
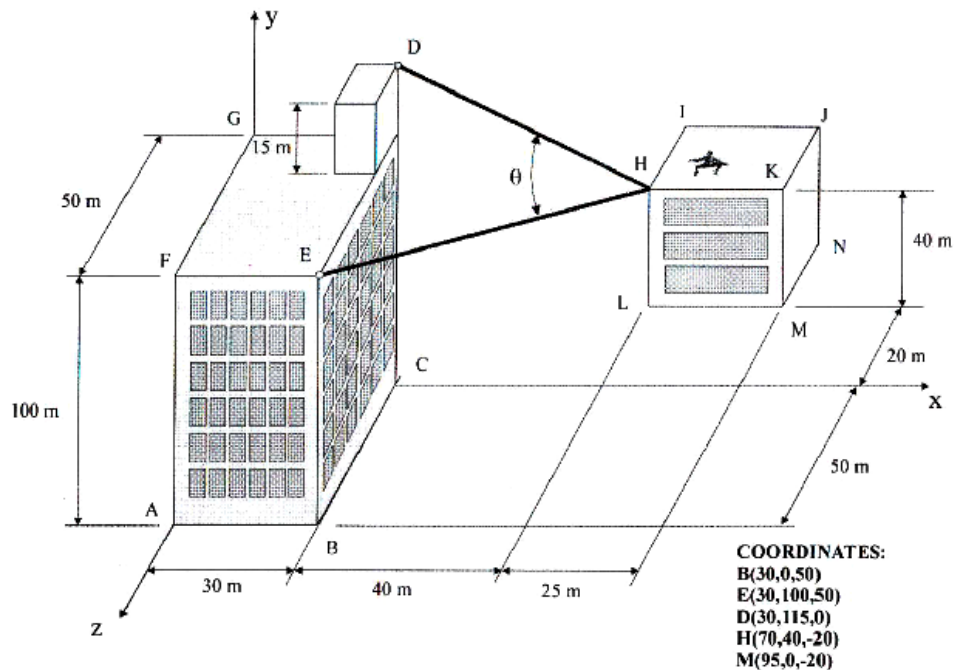
S2-605 A *3 m x 4 m* wood stud wall sits on top of a concrete foundation wall as shown in the figure. The stud wall is bolted to the foundation wall and is supported by two cables *AC* and *AD* attached to the wall at point *A*. The tension in cable *AC* is *1.2 kN*. Determine:

(a)   The angle between cable *AC* and cable *AD*,

(b)   The moment of the *1.2 kN* force applied at *A* by cable *AC* about the line *EO*,

(c)   The moment of the *1.2 kN* force applied at *A* about the line *CD* and

Coordinates (metres)
O: (0, 0, 0)
A: (0, 3, 4)
B: (0, 3, 0)
C: (-5, -1, 5)
D: (5, -3, 7)
E: (0, 0, 4)