ARCH 331: Practice Quiz 1

*Note: No aids are allowed for part 1. One side of a letter sized paper with notes is allowed during part 2, along with a silent, **non-programmable** calculator. There are no reference charts for part 2.*

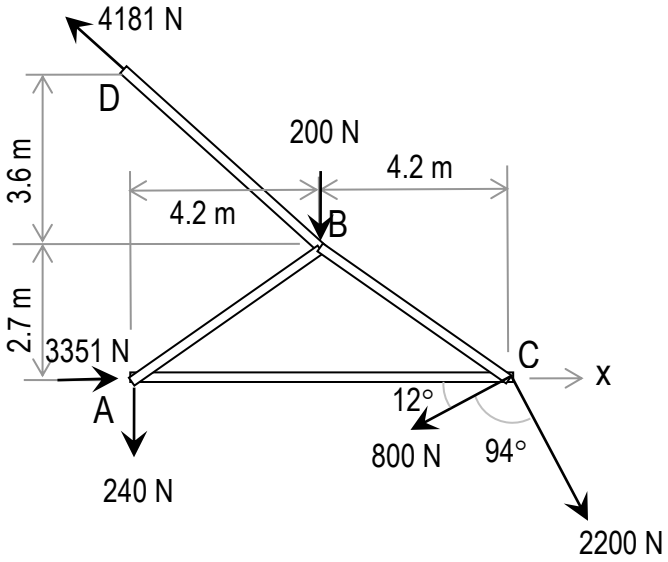
Clearly show your work and answer.

Part 1) Worth 5 points
(conceptual questions)

*Part 2) Worth 45 point*s

(NOTE: The units, dimensions, and loading for the truss can and will be changed for the quiz!) The points or member forces can be changed as well, as indicated by the brackets.)

The free body diagram shown is a truss anchored to a wall at the point A and supported with a strut (DB) out of point B. There are two forces applied at point C.



Find:

a) The resultant components from the forces at point C [or B...] (*size and direction).*

b) The resultant force from the forces at point C [or B...] (*size and angle to +x axis).*

c) The member forces and senses (compression or tension) of BC and AC [or AB and BC or AB and AC...] of the truss.

Answers – Not provided on actual quiz!

a) R_{Cx} = -176.1 N (left), R_{Cy} = -2281.1 N (down) [or R_{Bx} = -3174.4 N (left), R_{By} = 2521.0 N (up)...]
b) R = 2287.9 N, θ = -94.4° (or 265.6°) [or R = 4053.7 N, θ = 141.5°]
c) BC = 4218.3 N (T), AC = -3724.5 N (C) [or AB = 444.1 N (T)...]