MIDDLE EAST TECHNICAL UNIVERSITY

MECHANICAL ENGINEERING DEPARTMENT

ME 205 STATICS – FALL 2018

SECTION 1

HOMEWORK #5

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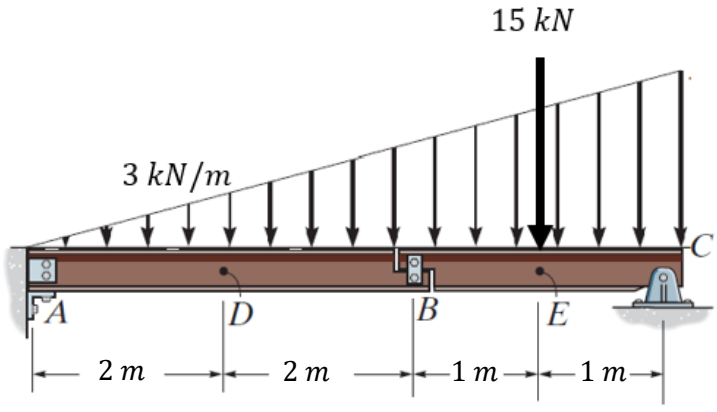
Assigned Date: 27.12.2018
Due Date: 04.01.2019
Due Time: 16.00
Grading Due Date: 17.01.2019

Please include your name, student ID, due date, a proper headline, page number with total page number, and units in your homework. Neatness will be graded.

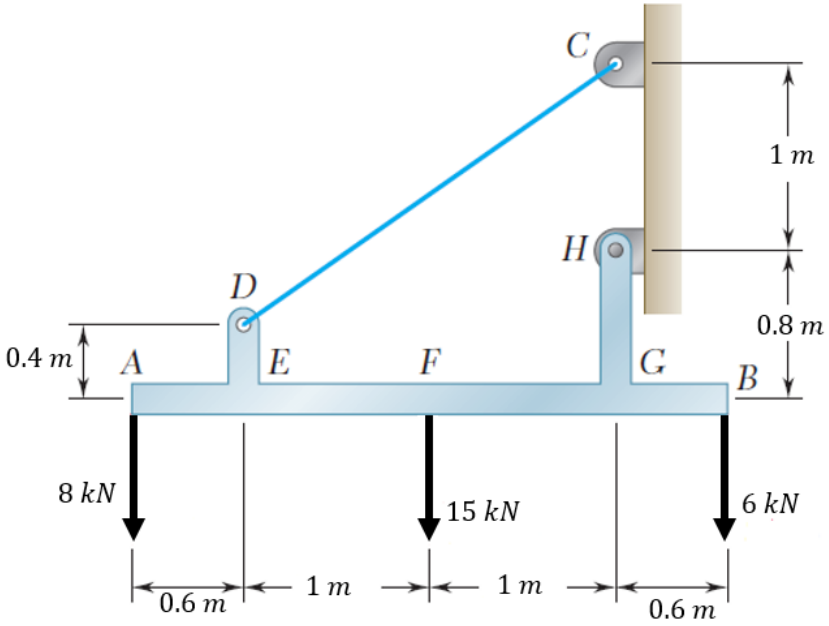
1. For the given beam,
- **a.** Find the internal normal force, shear force, and moment at points *D* and *E.* Point *E* is located at just to the left of the $15\ kN$ force. *(5 pts)*
- **b.** Draw the shear and bending moment diagrams. *(20 pts)*
- **c.** Determine the magnitude and location of the maximum absolute value of the shear force and the bending moment. *(5 pts)*



2. For the section *AB*,

a. Draw the shear and bending moment diagrams. *(20 pts)*

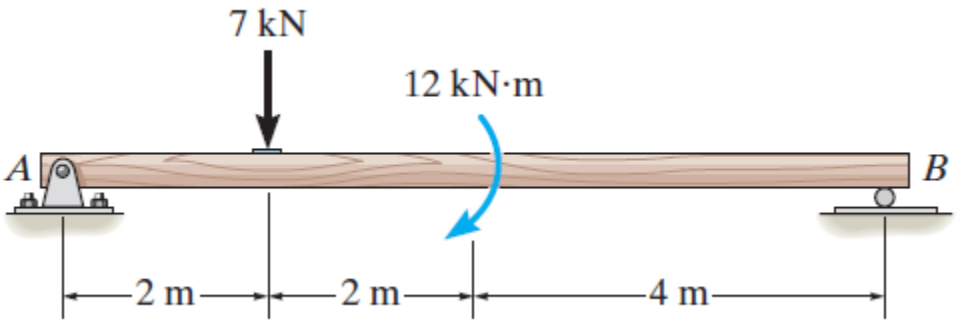
b. Determine the magnitude and location of the maximum absolute value of the shear force and the bending moment. *(5 pts)*



3. The weight of the uniform beam is $6\ kN$.

a. Draw the shear and bending moment diagrams. (15 pts)

b. Determine the magnitude and location of the maximum absolute value of the shear force and the bending moment. (5 pts)



4. For the given beam,

a. Draw the shear and bending moment diagrams. *(20 pts)*

b. Determine the magnitude of the shear force and the bending moment at the middle of the beam. *(5 pts)*