

Due: Friday 13 October 2017, 17h00

(Please submit your assignment in the **CBY drop-box**)

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Total: 20 marks

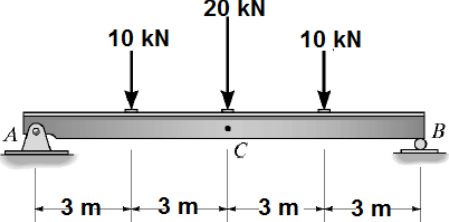
Problem 1 (5 marks)

The cantilever beam shown below is subjected to the loads shown in the figure. Use the **moment-area method** to determine the **displacement @B** and the **slope @A**.

| | |
|---|--|
|  | <p>Note: $E = 200 \text{ GPa}$, $I = 50(10^6) \text{ mm}^4$</p> <p>Note: Give your answers in "mm"</p> <p>Note: C = fixed support</p> |
|---|--|

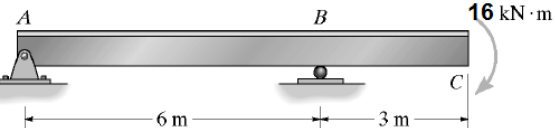
Problem 2 (5 marks)

The beam shown below is subjected to the load shown in the figure. Use the **conjugate-beam method** to determine the displacement at point C.

| | |
|--|---|
|  | <p>Note: Give your answers in terms of "EI" (constant for the entire beam).</p> <p>Note: A = pin , B = roller support</p> |
|--|---|

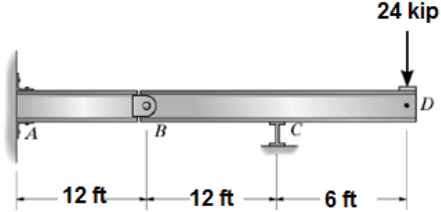
Problem 3 (5 marks)

The beam shown below is subjected to the loads shown in the figure. Use the **moment-area method** to determine the displacement at point C.

| | |
|---|---|
|  | <p>Note: Give your answers in terms of "EI" (constant for the entire beam).</p> <p>Note: A = pin , B = roller support</p> |
|---|---|

Problem 4 (5 marks)

The beam shown below is subjected to the load shown in the figure. Use the **conjugate-beam method** to determine the displacement at point D.

| | |
|---|---|
|  | <p>Note: $E = 29(10^3) \text{ ksi}$, $I = 30 \text{ in}^4$</p> <p>Note:</p> <ul style="list-style-type: none"> • A = fixed support • B = hinge • C = roller |
|---|---|