***Homework Problem H12.A***

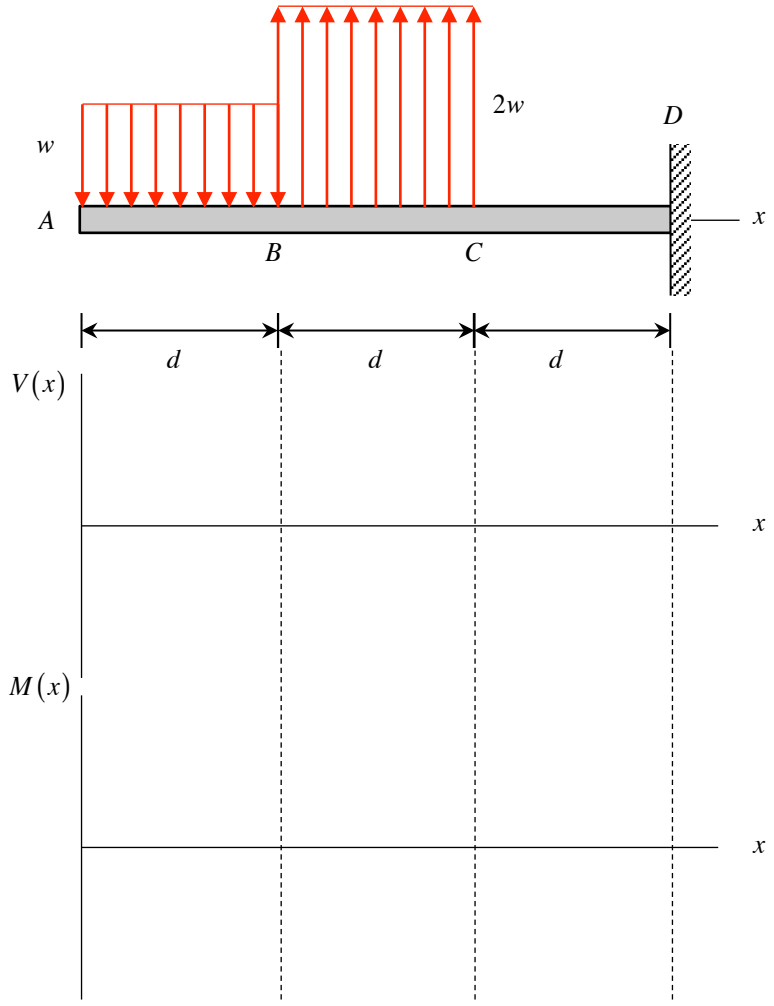
***Given***: Consider the beam loaded as shown below. The beam has a solid square cross section with cross-section dimensions $b$ x $b$.

***Find***: For this problem:

a) Determine the location(s) for which pure bending exists on the cross section of the beam.

b) For the location(s) found in a) above, determine the maximum normal stress.

For this problem, use the following parameters: $d$ = 2 m, $w$ = 10 kN/m and $b$ = 100 mm.



***Homework Problem H12.B***

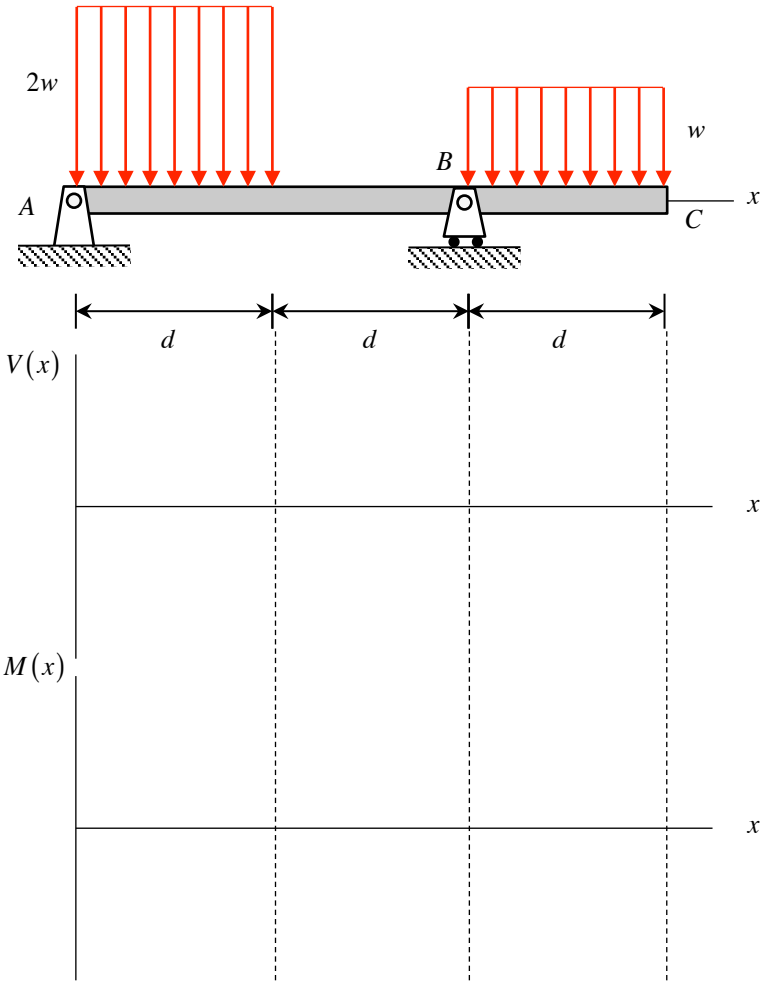
***Given***: Consider the beam loaded as shown below. The beam has a tubular cross section with inner and outer radii of R/2 and R, respectively.

***Find***: For this problem:

a) Determine the location(s) for which pure bending exists on the cross section of the beam.

b) For the location(s) found in a) above, determine the maximum normal stress.

For this problem, use the following parameters: $d$ = 3 ft, $w$ = 15 kips/ft and $R$ = 4 in.



***Homework Problem H12.C***

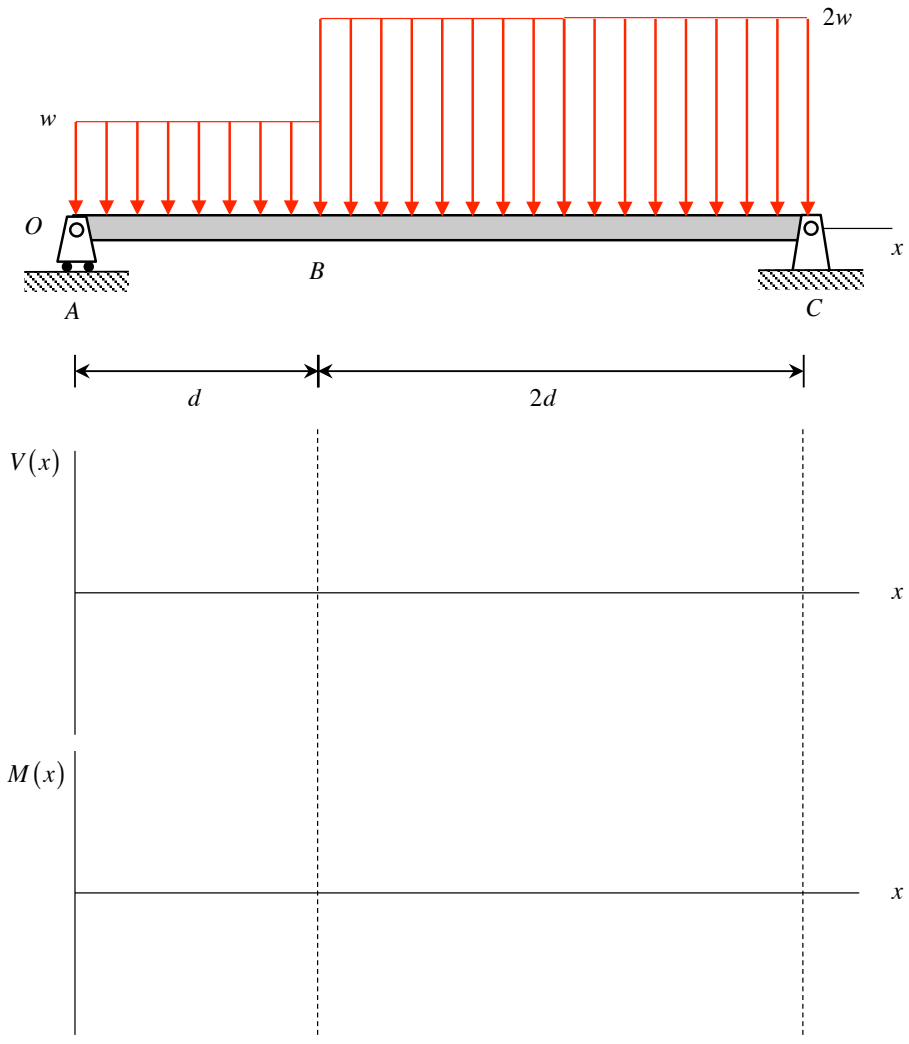
***Given***: Consider the beam loaded as shown below. The beam has a rectangular cross section with cross-section dimensions of $b$ x $h$, where $b$ is the dimension into the page.

***Find***: For this problem:

a) Determine the location(s) for which pure bending exists on the cross section of the beam.

b) For the location(s) found in a) above, determine the maximum normal stress.

For this problem, use the following parameters: $d$ = 6 ft, $w$ = 4 kips/ft, $b$ = 2 ft and $h$ = 4 ft.



***Homework Problem H12.D***

***Given***: Consider the beam loaded as shown below. The beam has a rectangular cross section with cross-section dimensions of $b$ x $h$, where $b$ is the dimension into the page.

***Find***: For this problem:

a) Determine the location(s) for which pure bending exists on the cross section of the beam.

b) For the location(s) found in a) above, determine the maximum normal stress.

For this problem, use the following parameters: $d$ = 1 m, P = 10 kN, $w$ = 30 kN/m, $b$ = 0.3 m and $h$ = 0.3 m.