Structural Analysis 1

By : M.Roghaei

Home Work # 1

Bahman 93-94

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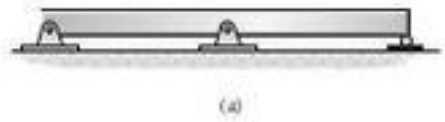
Statically Determinate, Statically Indeterminate, or Unstable

Degree of Statically Indeterminacy (dosi)

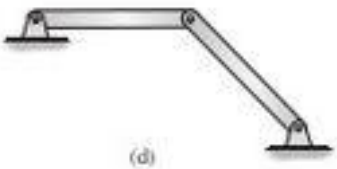
2-11 Classify each of the structures as statically determinate, statically indeterminate, or unstable, if indeterminate, specify the degree of indeterminacy. The supports or connections are to be assumed as stated.



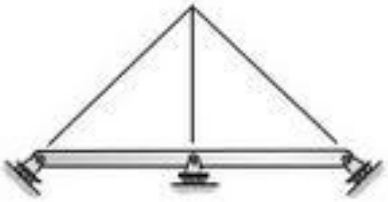
(a)

(b)

(c)



(d)



(e)

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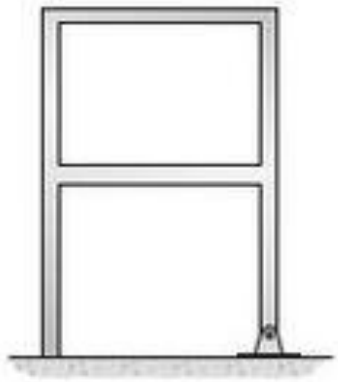
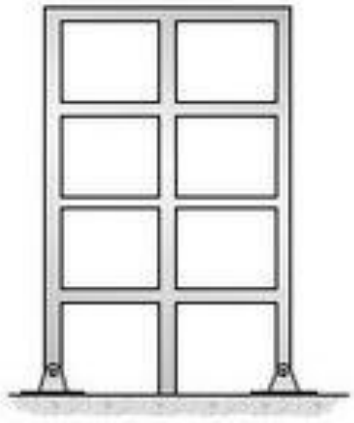
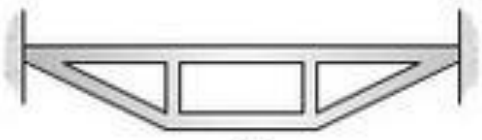
2-12 Classify each of the frames as statically determinate, or indeterminate. If indeterminate, specify the degree of indeterminacy. All internal joints are fixed connected.



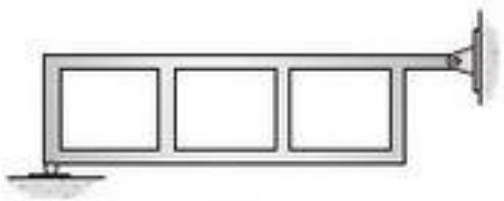
(a)



(b)



(c)



(d)

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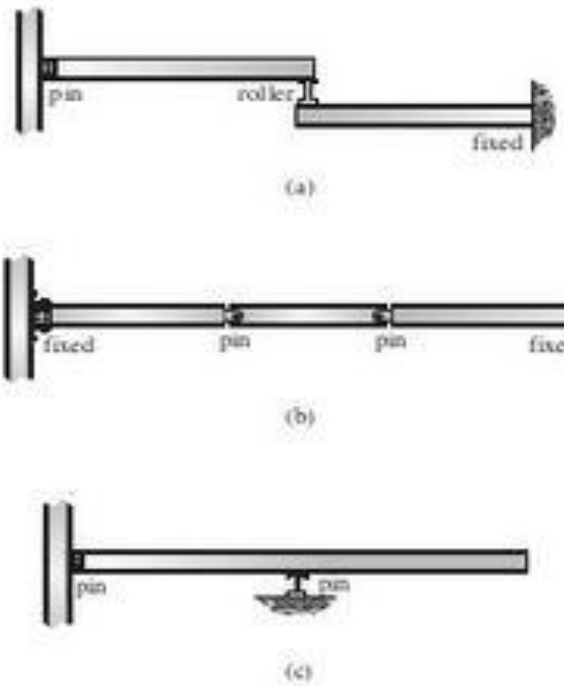
2-13 Classify each of the structures as statically determinate, statically indeterminate, or unstable, if indeterminate, specify the degree of indeterminacy. The supports or connections are to be assumed as stated.



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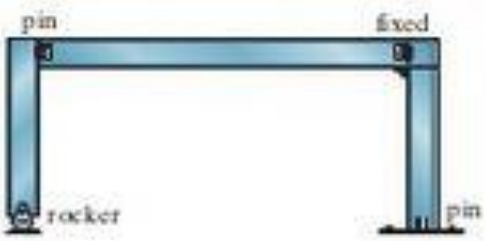
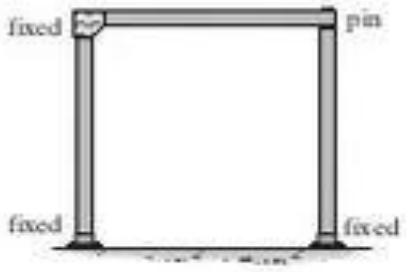
2-14 Classify each of the structures as statically determinate, statically indeterminate, or unstable, if indeterminate, specify the degree of indeterminacy. The supports or connections are to be assumed as stated.



(a)

(b)



(c)

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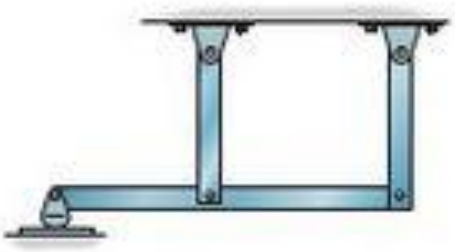
2-15 Classify each of the structures as statically determinate, statically indeterminate, or unstable, if indeterminate, specially the degree of indeterminacy.

(a)

(b)



(c)

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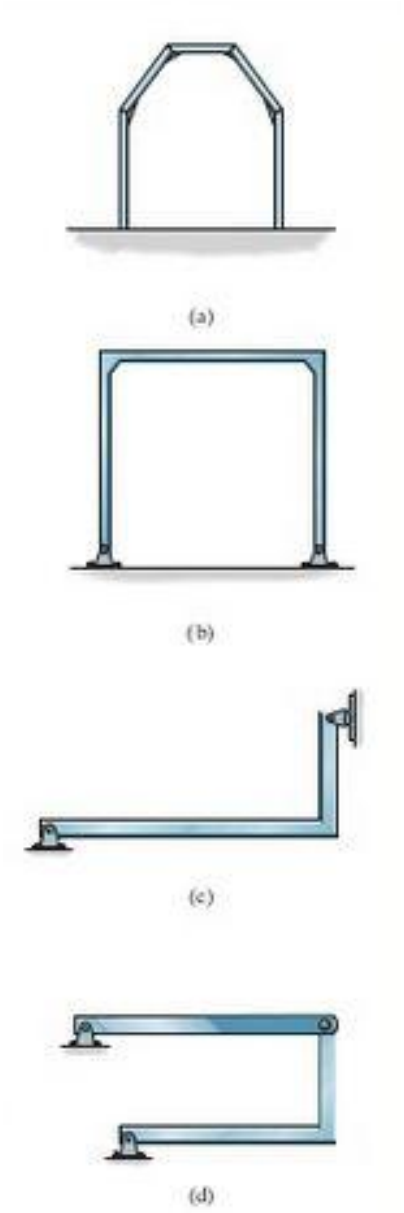
2-16 Classify each of the structures as statically determinate, statically indeterminate, or unstable, if indeterminate, specially the degree of indeterminacy.



(a)

(b)

(c)

(d)

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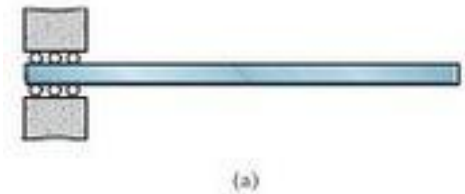
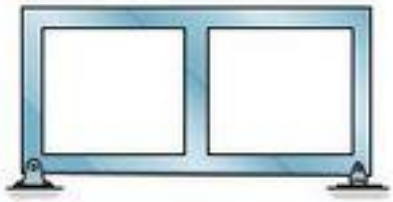
2-17 Classify each of the structures as statically determinate, statically indeterminate, or unstable, if indeterminate, specially the degree of indeterminacy.

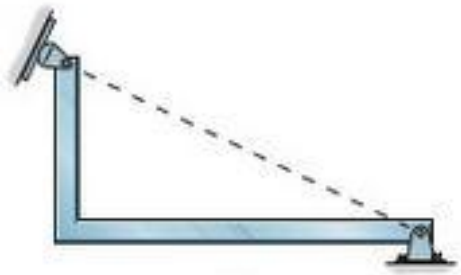


(a)



(b)

(c)



(d)

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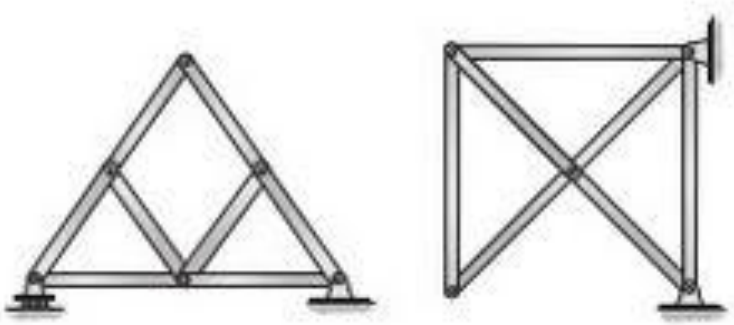
2-18 Classify each of the following trusses as statically determinate, statically indeterminate, or unstable, if indeterminate, specially the degree of indeterminacy.



(a) (b)

(c)

(d)

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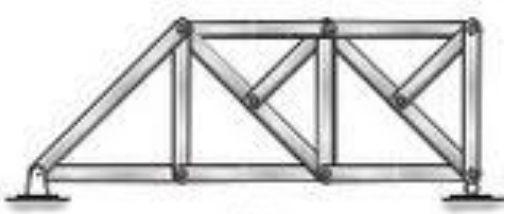
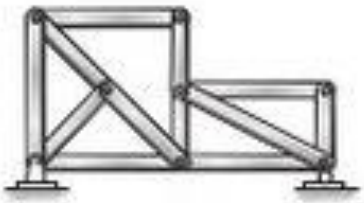


(a)

(b)



(c)

(b)

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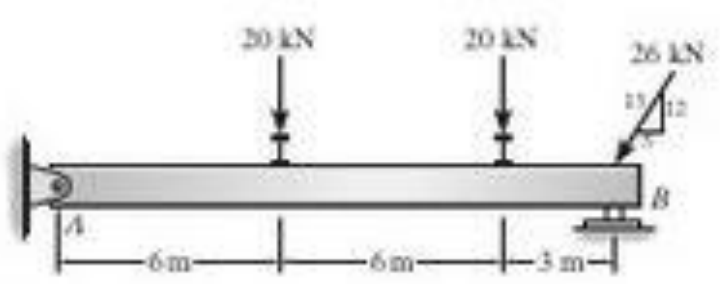
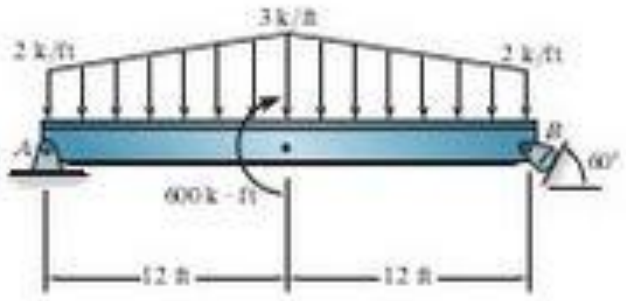
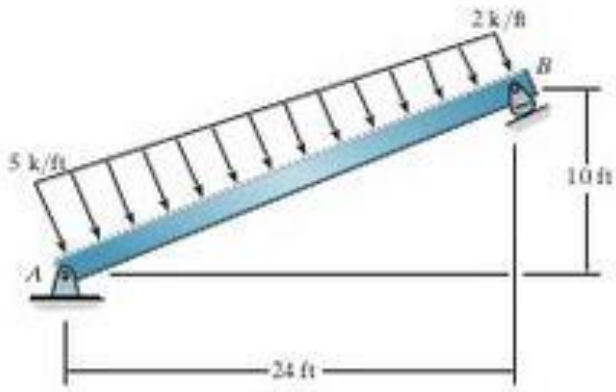
Reaction on the Beams

2-18 Determine reactions on the beams.







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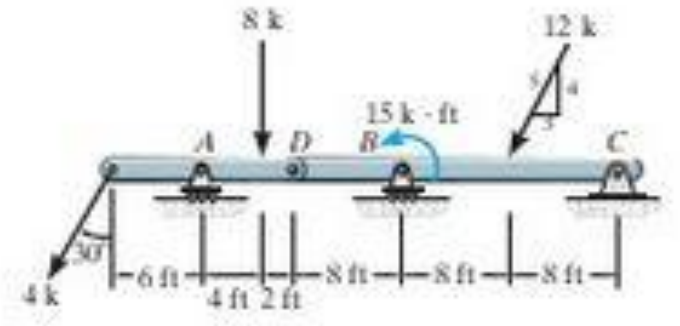

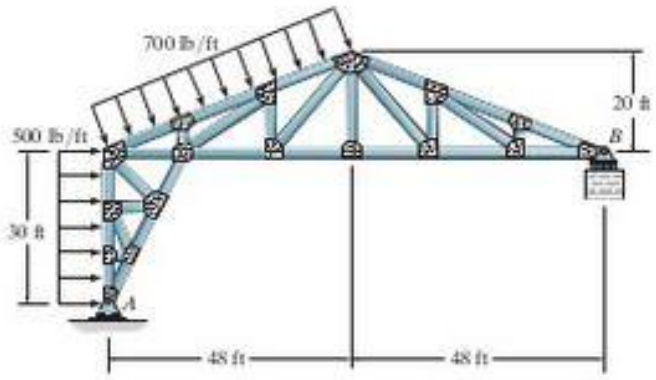

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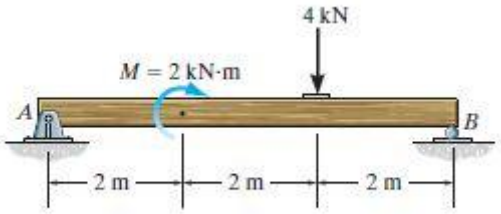
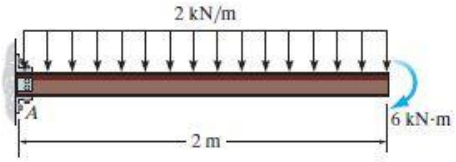
Shear Force & Bending Moment Diagrams

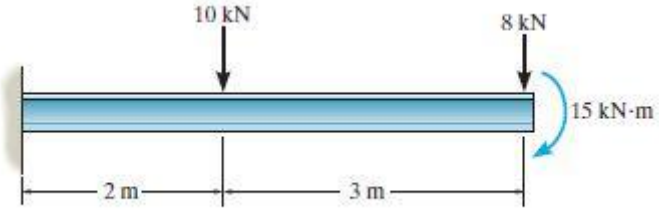
6–2. Draw the shear and moment diagrams for the simply supported beam.



***6–4.** Draw the shear and moment diagrams for the cantilever beam.



6–5. Draw the shear and moment diagrams for the beam.



6–6. Draw the shear and moment diagrams for the overhang beam.

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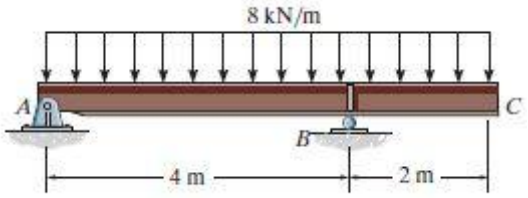
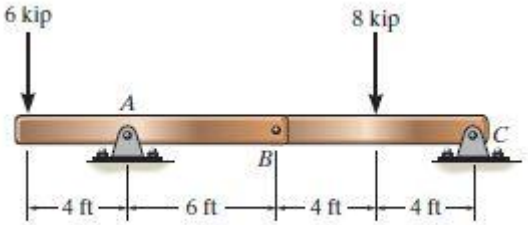
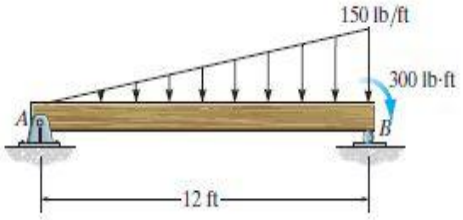


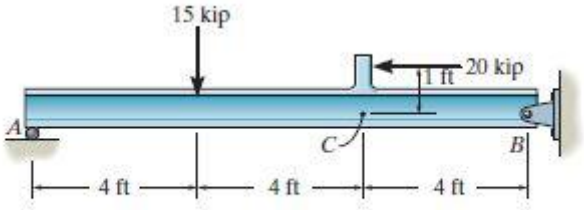
6–7. Draw the shear and moment diagrams for the compound beam which is pin connected at *B*.



***6–8.** Draw the shear and moment diagrams for the simply supported beam.



6–9. Draw the shear and moment diagrams for the beam. *Hint:* The 20-kip load must be replaced by equivalent loadings at point *C* on the axis of the beam.



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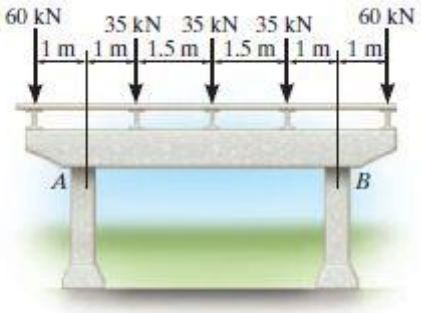
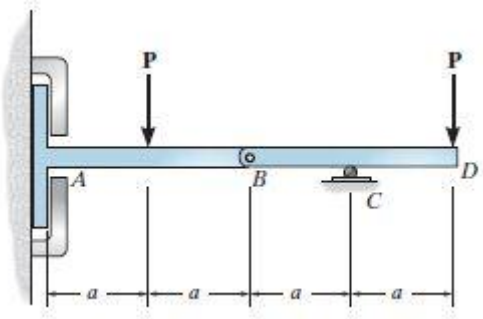
*6–12. A reinforced concrete pier is used to support the stringers for a bridge deck. Draw the shear and moment diagrams for the pier when it is subjected to the stringer loads shown. Assume the columns at A and B exert only vertical reactions on the pier.



6–13. Draw the shear and moment diagrams for the compound beam. It is supported by a smooth plate at A which slides within the groove and so it cannot support a vertical force, although it can support a moment and axial load.



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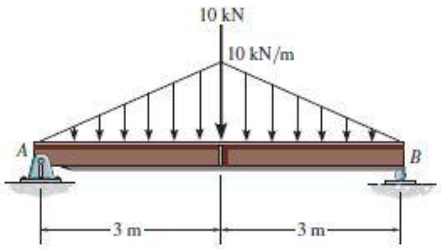
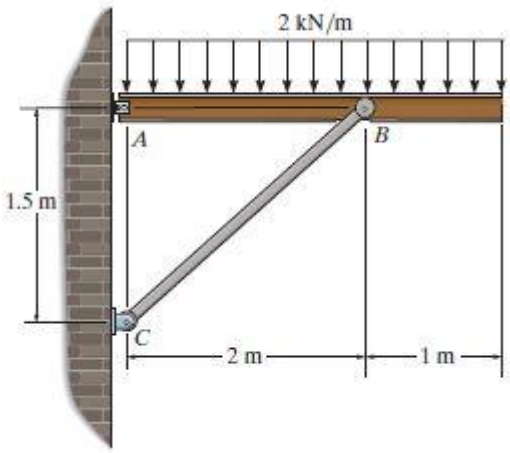
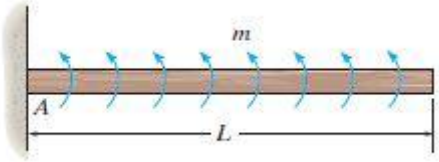
*6–20. Draw the shear and moment diagrams for the simply supported beam.



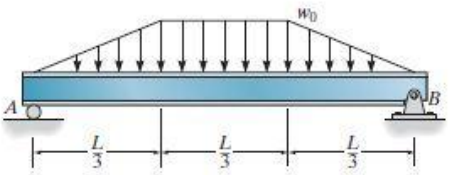
•6–21. The beam is subjected to the uniform distributed load shown. Draw the shear and moment diagrams for the beam.



6–25. The beam is subjected to the uniformly distributed moment m (moment/length). Draw the shear and moment diagrams for the beam.



*6–28. Draw the shear and moment diagrams for the beam.



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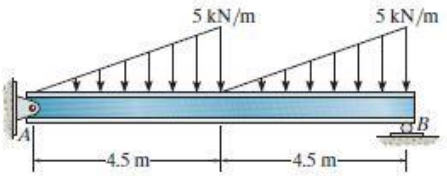
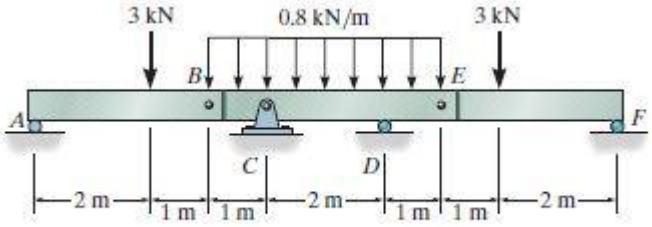
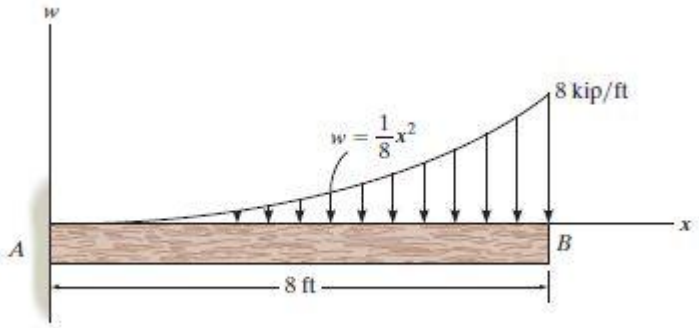
•6–29. Draw the shear and moment diagrams for the beam.



6–41. Draw the shear and moment diagrams for the compound beam. The three segments are connected by pins at B and E.



*6–44. Draw the shear and moment diagrams for the beam.



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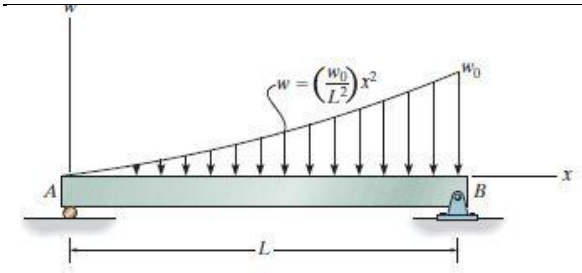

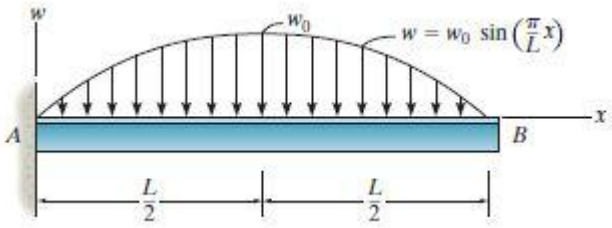

Thank you

Majid Roghaei