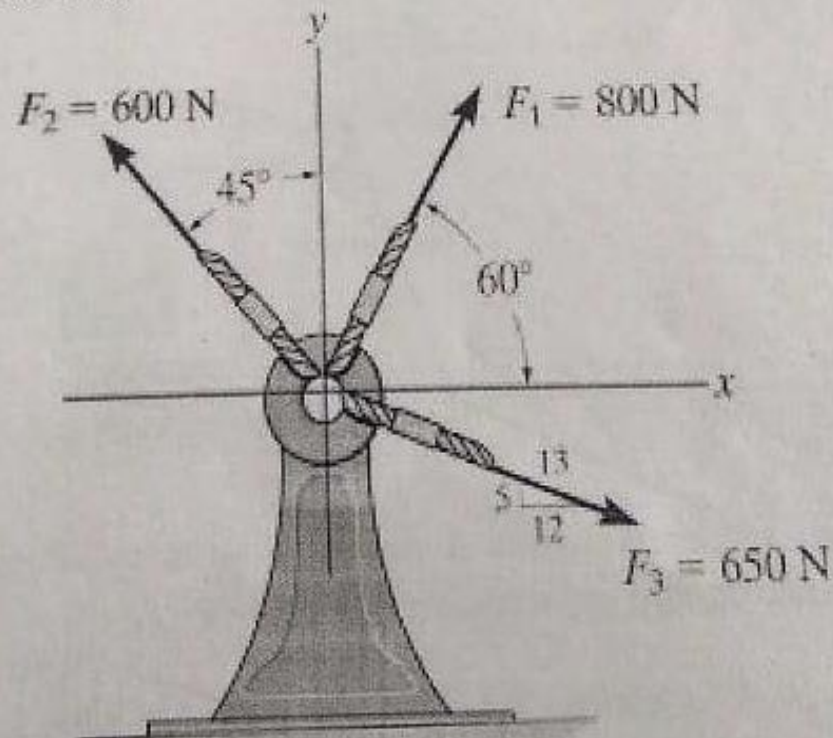




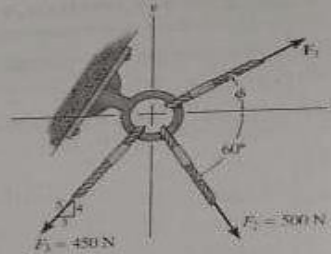
ASSIGNMENT

1. Differentiate between kinetics and kinematics.
2. Define the terms (i) Coplanar forces (ii) Concurrent forces.
3. Define Statics and Dynamics
4. State Lami's Theorem
5. State the Principle of transmissibility.
6. State Newton's Three Laws
7. How will you find the single equivalent effect of a uniformly varying load on a beam?
8. Differentiate between the roller support and Hinged support.
9. Draw a simply supported beam with two point Loads
10. Distinguish between a couple and a moment.
11. Enumerate the conditions for equilibrium of a system of coplanar concurrent forces.
12. State Varignon's Theorem
13. List any two types of beams with neat diagrams.
14. Define the term 'free body diagram'.
15. How to convert the UVL into point load.
16. Determine the resultant for the system of forces as shown figure . Also find the direction of the resultant.

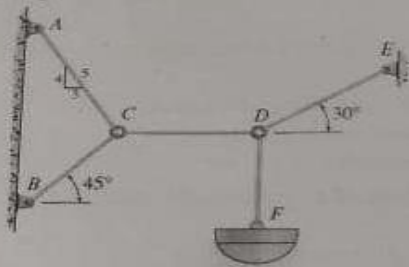




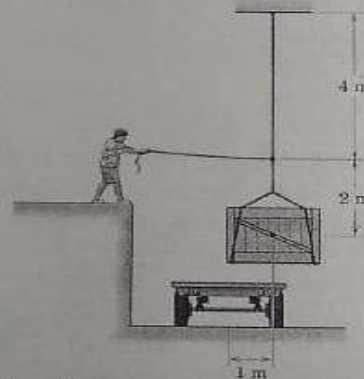
17. If  $F_1 = 600 \text{ N}$  and  $\phi = 30^\circ$ , determine the magnitude of the resultant force acting on the eyebolt and its direction measured clockwise from the positive x axis as shown figure



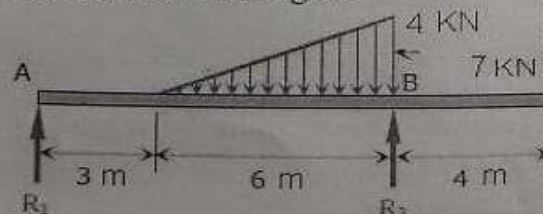
18. Determine the tension developed in each cord required for equilibrium of the 20-kg lamp.



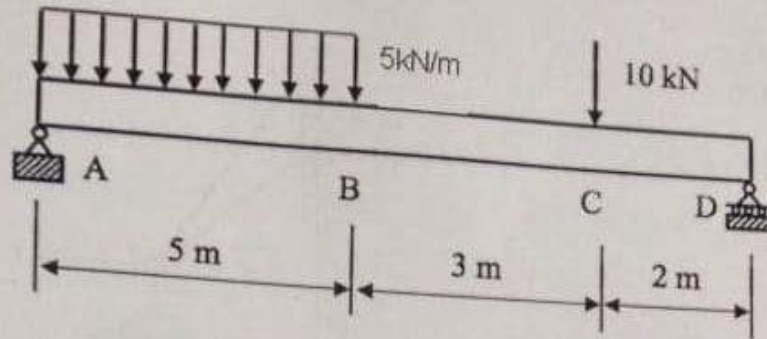
19. What horizontal force  $P$  must a worker exert on the rope to position the 50kg crate directly over the trailer?



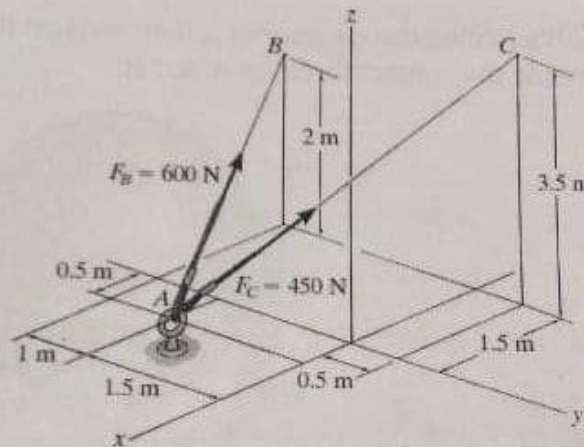
20. Determine the reactions at  $A$  and  $B$  for the beam subjected to a combination of distributed and point loads as shown in Figure



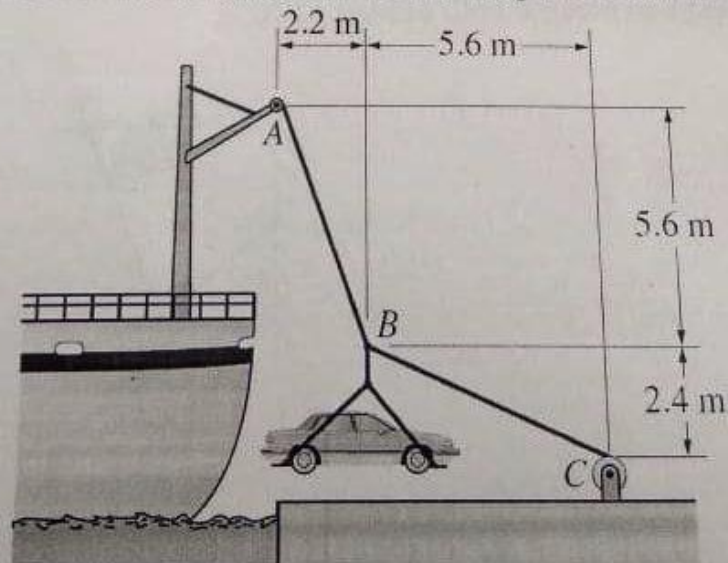
21. Calculate the support reactions at  $A$  and  $B$  for the beam subjected to the two linearly varying load distributions as shown in the figure



22. Determine the magnitude and coordinate direction angles of the resultant force acting at A.

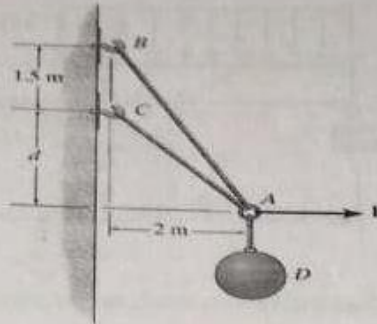


23. The 1200-kg car is being lowered slowly onto the dock using the hoist A and winch C. Determine the forces in cables BA and BC for the position shown.

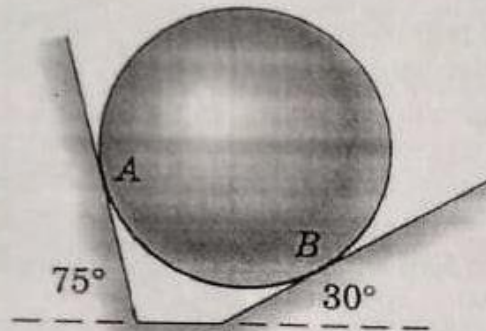




24. Determine the forces in cables  $AC$  and  $AB$  needed to hold the 20-kg ball  $D$  in equilibrium. Take  $F = 300$  N and  $d = 1$  m.



25. The 20kg homogeneous smooth sphere rests on the two inclines as shown. Determine the contact forces at A and B.



6. Determine the magnitude of tension in the supporting cables  $AC$  and  $BC$  which support an electric bulb of load 12 N.

