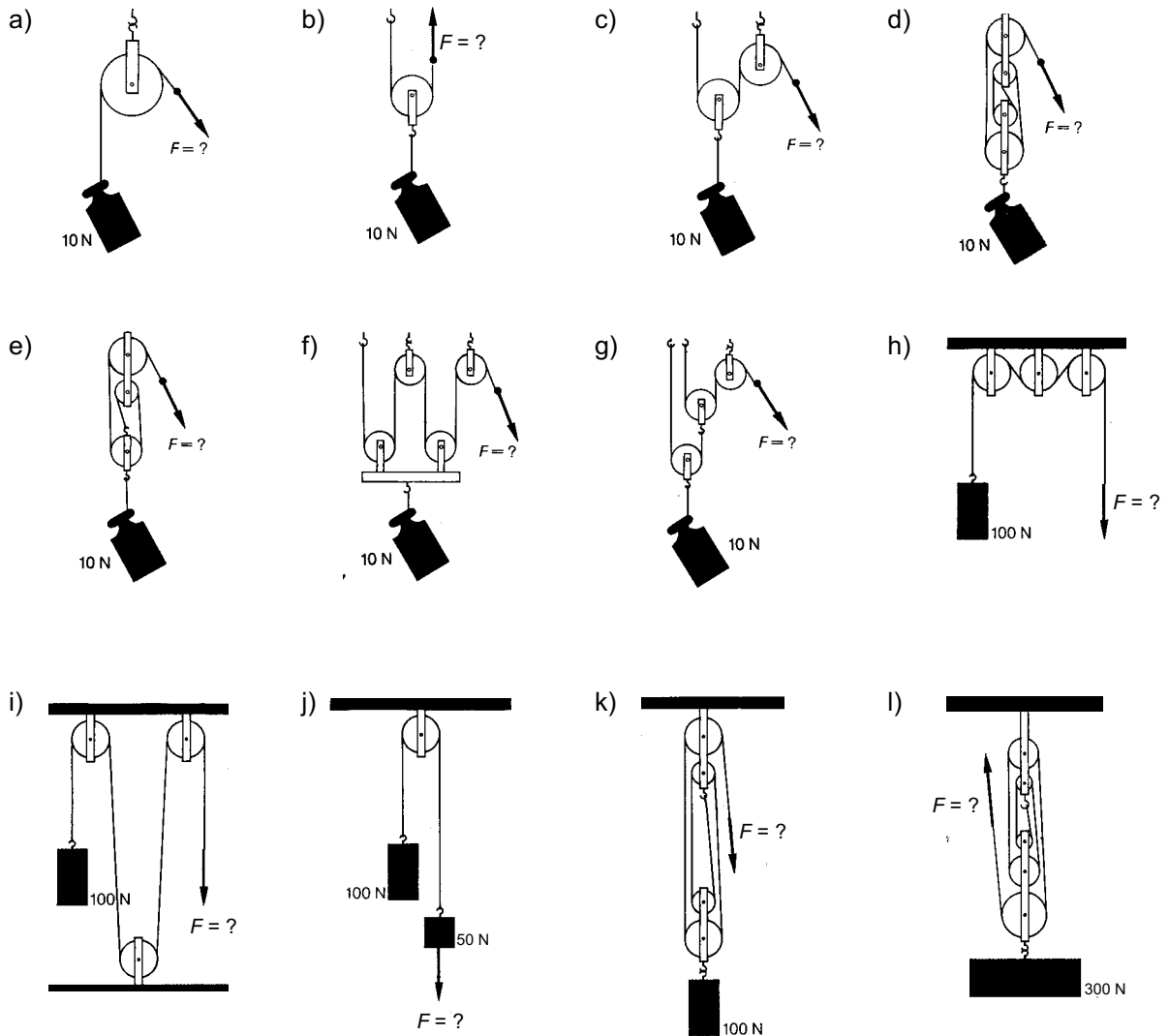
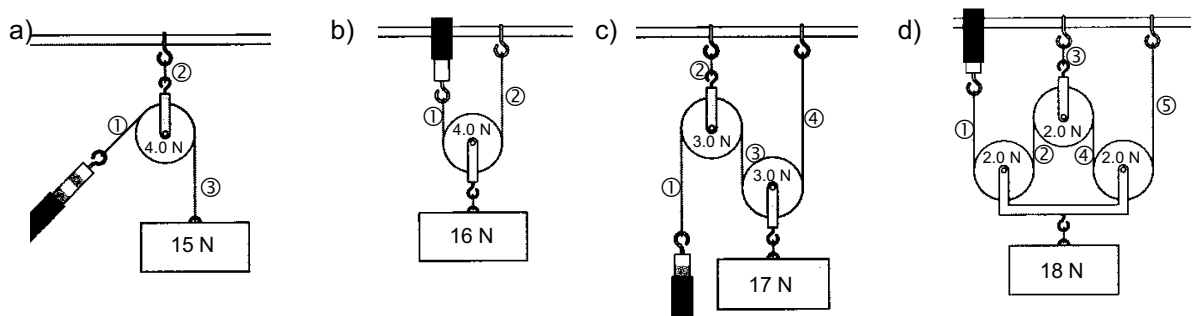


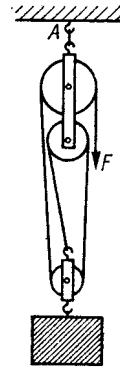
1. Determine the force F . Neglect the weight of the pulleys and ropes as well as friction.



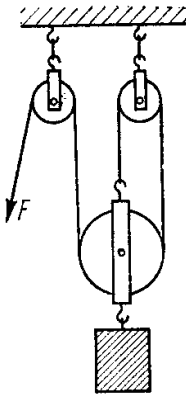
2. Determine the forces acting in the parts ①, ②, ③ etc. of the rope. Neglect friction.



3. A box ($F_G = 5.000 \text{ kN}$) is lifted by a block and tackle. The weight of the fixed pulleys is 200.0 N each, while the movable pulley's weight is 70.00 N . Neglect friction.
- What is the force F required on the rope?
 - Determine the length of rope that is needed in order to lift the box by 15.0 m .
 - What is the force acting on the hook at A?



4.



A box of weight 3.40 kN is lifted using a block and tackle. The work done on the rope is 5.89 kJ . The weight of the fixed pulleys is 70.0 N each, while the movable pulley's weight is 110.0 N . Neglect friction.

Determine how high the box was lifted.

solutions

- 10 N
 - 5.0 N
 - 5.0 N
 - 2.5 N
 - 3.3 N
 - 2.5 N
 - 2.5 N
 - 100 N
 - 100 N
 - 50 N
 - 25 N
 - 50 N
- ① 15 N, ② 34 N, ③ 15 N
 - ① 10 N, ② 10 N
 - ① 10 N, ② 23 N, ③ 10 N, ④ 10 N
 - ① 5.5 N, ② 5.5 N, ③ 13 N, ④ 5.5 N, ⑤ 5.5 N
- 1690 N
 - 45.0 m
 - 7160 N
- 1.68 m