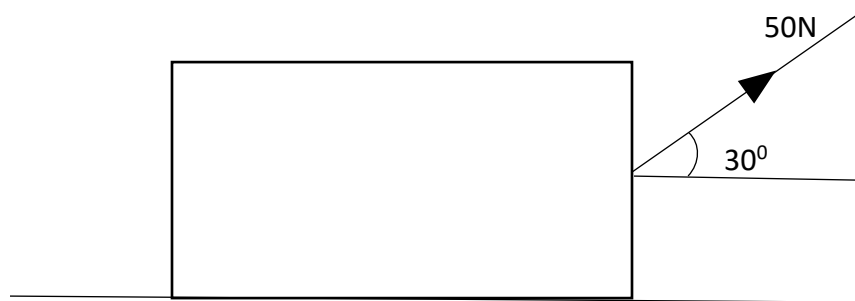


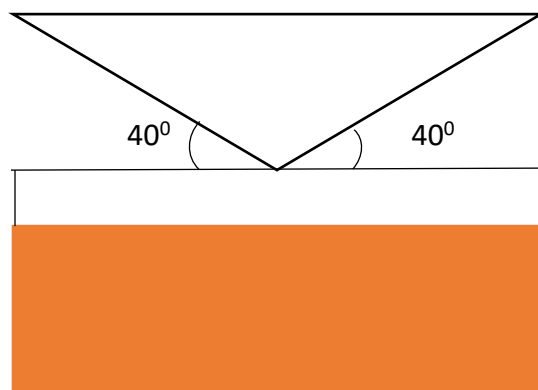
Physics

Test Topic 5 (Unit 4)

1. Define equilibrium.
2. What is the force and acceleration of an object in equilibrium?
3. What are the conditions for an object to be considered in equilibrium?
4. When is equilibrium considered to be static one?
5. Define the words below
 - a. Struts
 - b. Ties
 - c. Redundant
6. Give four applications of mechanical properties of structures.
7. A boy is being pulled by a force of 50 N through a string as shown in the figure below but remains at rest.
 - a. Determine the vertical and horizontal components in this force.
 - b. Determine the static frictional force.



8. A picture was hanged on a wall using two threads as shown below.



9. Define the following terms and give examples where necessary.
 - a. Strength of forces on it.

Physics

Test Topic 5 (Unit 4)

- b. Shear force.
 - c. Stress.
10. Explain factors that affect the strength of a material.
11. Using a diagram, describe the effect of a shear force on a body.
12. Define the following terms.
- i. Tension
 - ii. Compression
13. a. i. What is the meaning of the term concrete?
ii. Explain how concrete can be reinforced.
iii. State why concrete is a good building material?
- b. Explain the lower part of the second floor of a building is made of reinforced concrete while the upper part is not reinforced.
14. The sign in below hangs outside the S3 Physics laboratory, advertising the most important truth to be found inside. The sign is supported by a diagonal cable and rigid horizontal bar. If the sign has a mass of 50 kg, determine the tension in the diagonal cable that supports its weight.

