

Worksheet 3

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1. A point object of weight 6.2N is acted on by a horizontal force of 3.8N.
 - a. Calculate the resultant of these two forces.
 - b. Determine the magnitude and direction of a third force acting on the object for it to be in equilibrium

2. A small object of weight 5.4N is at rest on a rough slope, which is at an angle of 30° to the horizontal.
 - a. Sketch the free body diagram.
 - b. Calculate i) the frictional force, ii) the normal reaction from the surface.

3. An archer pulled a bow string back until the two halves of the string are at 140° to each other. The force needed to hold the string in this position was 95N.
 - a. Draw a free body diagram
 - b. Calculate the tension in each part of the bowstring
 - c. The resultant force on the arrow immediately i) before release and ii) after release.

4. An elastic string is stretched between two fixed points 0.8m apart. An object of weight 4N is suspended from the midpoint of the string, causing it to drop a distance of 0.12m.
 - a. Calculate the angle of each part of the string to the vertical,
 - b. Calculate the tension in each part of the string.