202: Principles of electrical science  
**Worksheet 16: Levers**

**Answer guide**

1. A piece of steel wire is to be cut by a pair of wire cutters. The wire is gripped 5mm from the fulcrum, whilst the pressure is applied to the handles 80mm from the fulcrum. Calculate the force that must be applied to the handles in order to cut the wire if it requires a direct cutting force of 160N.

10N

1. A lever is arranged so that a load of 1,000N is to be lifted at a distance of 200mm from the fulcrum. Calculate the force that must be applied 2m from the fulcrum to balance the load.

100N

1. A crowbar is used to lift a packing case. The load is 200mm from the fulcrum and an effort of 50N is applied 1.25m to the other end of the crowbar. Determine the load in Newtons.

312.5N

1. A load of 500N is situated on the end of a crowbar 150mm from the fulcrum. An effort of 37.5N is applied to the other end of the crowbar. Determine the length of the crowbar.

2m