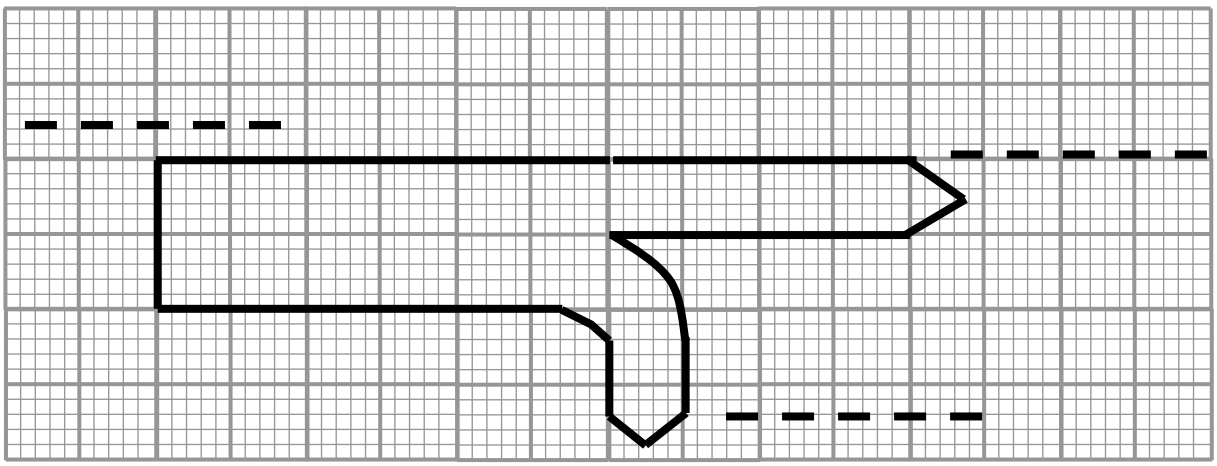
Sankey Diagrams

A Sankey diagram shows you how well a machine uses energy. In other words, it tells you if it uses it **efficiently** (without much waste) or **inefficiently** (with a lot of waste).

The thickness of the arrows shows how much energy is involved. (The length of the arrows does not matter in a Sankey Diagram.) Useful energy transfers are shown going left to right. Wasteful energy transfers are shown going downwards.

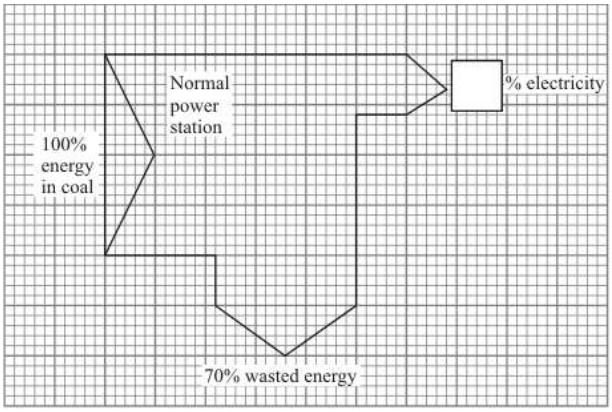


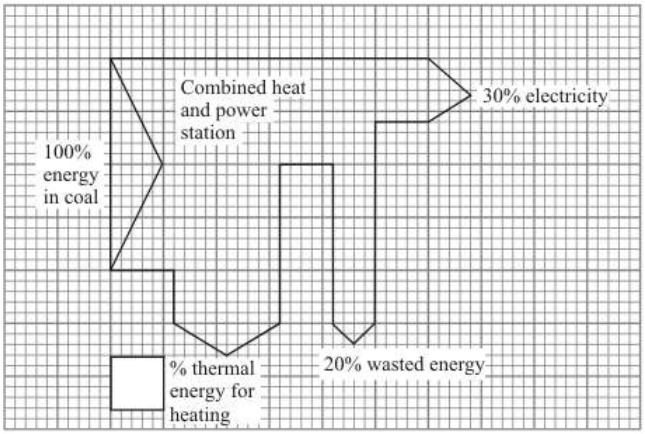
1. Write in these labels on the diagram above:
    a. INPUT ENERGY
    b. USEFUL OUTPUT ENERGY
    c. WASTED OUTPUT ENERGY

Power stations are usually not very efficient. A lot of energy is wasted as thermal energy. The diagrams show the percentage of energy transferred by two coal-burning power stations.

(2 a) Write the **two** missing figures in the boxes on the diagrams.

(2)

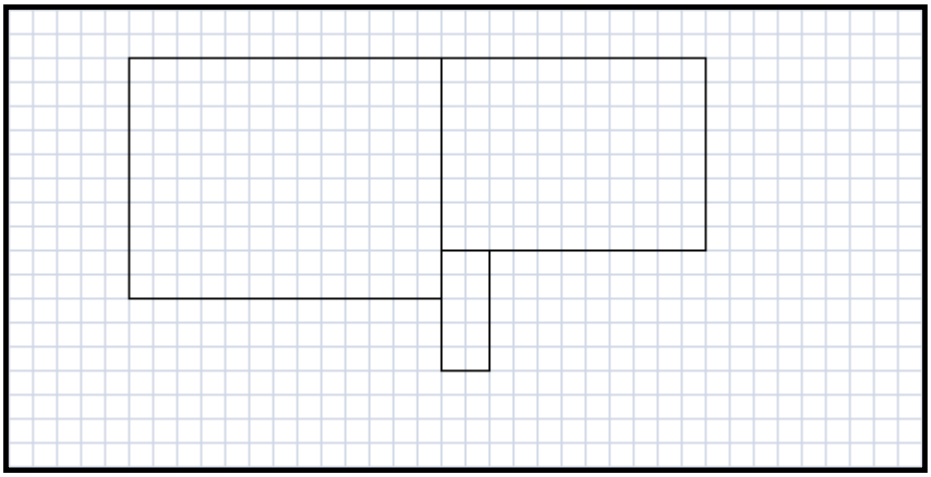




3 A team of scientists test a brand new hybrid car. They find out that 40% of the energy is transferred as kinetic energy (useful) and 55% is transferred as heat energy (wasted).

How much energy is wasted as sound? _____

4 An energy efficient light bulb. The input energy is 10J of electrical energy. The useful output energy is 8J of light energy. The wasted energy is 2J of thermal energy. Label the below diagram with the following labels:
Type of energy (e.g. electrical)
Energy value (e.g. 30J)
Useful, wasted or input



5. An inefficient light bulb. The input energy is 10J of electrical energy. The useful output energy is light 4J of light energy and the wasted energy is 6J of thermal energy. Draw a Sankey diagram to show the energy transfer.
1 square= 1J