8 The electricity supplied to a town is transmitted using a high-voltage cable. A transformer in the town has a soft-iron core.

(a) Explain the principle of operation of a simple iron-cored transformer.

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..... [4]

(b) The transformer steps the supply voltage down from 220 000 V to 33 000 V.

(i) There are 450 turns on the secondary coil.

Calculate the number of turns on the primary coil.

number of turns = ... [2]

(ii) The electrical power transferred to the transformer by the high-voltage cable is 77 MW.

Calculate the current in the primary coil.

current = ... [3]

[Total: 9]