

2 A student investigates a transformer.

This is the student’s method.

- use a primary coil with 10 turns
- connect the primary coil to a constant maximum input voltage
- measure the output voltage across the secondary coil
- repeat using an increasing number of turns on the primary coil

The table shows the student’s results.

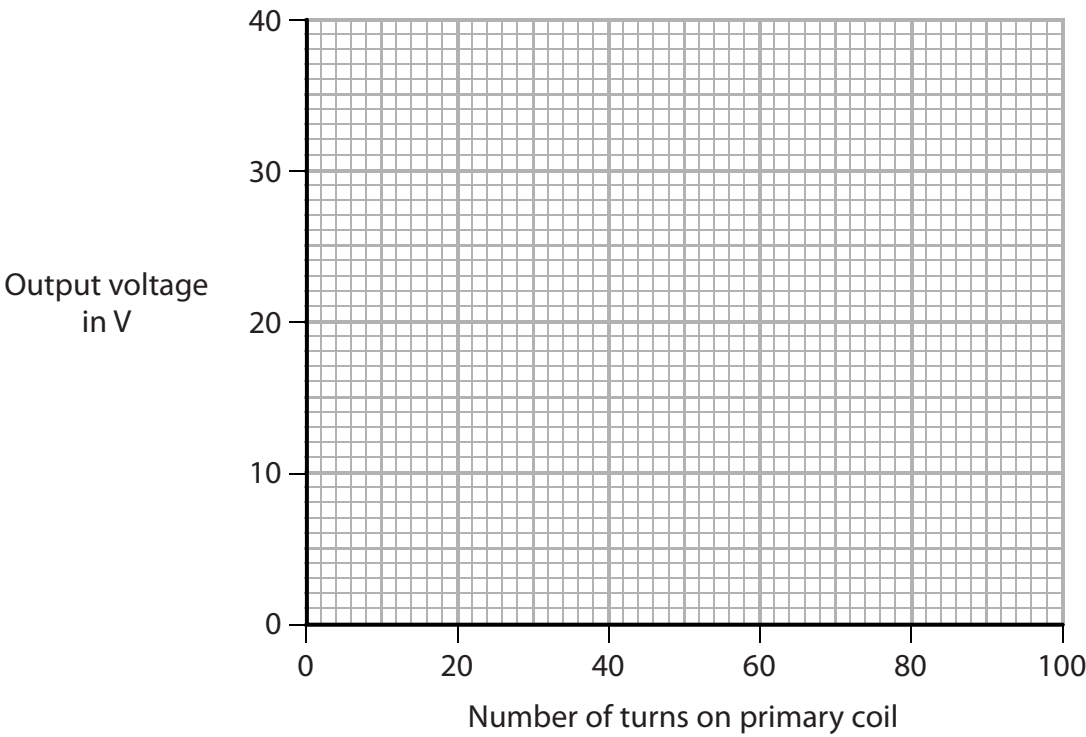
Number of turns on primary coil	Output voltage in V
10	39.6
20	19.7
40	9.9
60	6.6
80	5.0
100	4.0

(a) (i) Plot a graph of the student’s results on the grid.

(1)

(ii) Draw a curve of best fit.

(1)



- (iii) Describe the relationship between the output voltage and the number of turns on the primary coil.

(2)

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- (b) (i) State the formula linking input and output voltages and the turns ratio for the transformer.

(1)

- (ii) The input voltage of the transformer is 6.8 V.

Calculate the number of turns on the secondary coil.

(2)

number of turns =

(Total for Question 2 = 7 marks)



P 5 8 3 7 4 A 0 5 2 0