

- (a) A cookery book gives the following instruction for calculating the amount of time for which a turkey should be cooked: “Allow 15 minutes per 450 grammes plus an extra 15 minutes.”
For how many hours and minutes should a turkey weighing 9 kilogrammes be cooked?

| | | | |
|---|---|---|---|
| I $\frac{9000}{450} = 20$ | II $\frac{450}{9000} = \frac{1}{20}$ or 0.05 | III $1g = \frac{15}{450}$ or 0.033 | IV $\frac{450}{15}$ or 30g |
| $(20 \times 15) = 300 \text{ m}$ | $15 \div \frac{1}{20} = 300 \text{ m}$ | $9000 \times \frac{15}{450} = 300 \text{ m}$ | $\frac{9000}{30} = 300 \text{ m}$ |
| $300 + 15 = 315 \text{ m}$ $= 5 \text{ h } 15 \text{ m}$ | $300 + 15 = 315 \text{ m}$ $= 5 \text{ h } 15 \text{ m}$ | $300 + 15 = 315 \text{ m}$ $= 5 \text{ h } 15 \text{ m}$ | $300 + 15 = 315 \text{ m}$ $= 5 \text{ h } 15 \text{ m}$ |

- (b) €5000 was invested for 3 years at compound interest. The rate for the first year was 4%. The rate for the second year was 4.5 % .

- (i) Find the amount of the investment at the end of the second year.

| | | | |
|--------------------------|------------------------|-------------------------|--|
| $P(1) = 5000$ | $A = 5000 \times 1.04$ | $A = P(1 + r/100)^n$ | $I = \frac{P.T.R}{100}$ |
| $I(1) = \frac{200}{100}$ | | $A = 5000(1 + 4/100)^1$ | $I = \frac{5000 \times 1 \times 4}{100}$ |
| $P(2) = 5200$...(5m) | $= 5200$...(5m) | $A = 5200$...(5m) | $I=200 \Rightarrow A = 5200$...(5m) |

At the beginning of the third year a further IR£4000 was invested. The rate for the third year was r%. The total investment at the end of the third year was IR£9811.36.

- (ii) Calculate the value of r.

| | |
|---|---|
| I: $P(3) = 9434 \Rightarrow I(3) = 377.36$...(3m) $r = \frac{377.36}{9434} \times 100$...(7m) $= 4\%$...(10m) | II: $P(3) = 9434 \Rightarrow I(3) = 377.36$...(3m) $r = \frac{100 \times I}{P \times T} = \frac{100 \times 377.36}{9434 \times 1}$...(7m) $= 4\%$...(10m) |
| III: $\frac{9811.36}{9434}$...(3m) $= 1.04$...(7m) $\Rightarrow r = 4\%$...(10m) | |