

ARITHMETIC (Q 1, PAPER 1)

2004

- 1 (a) There are 240 eggs in a box.
2.5% of the eggs are broken.
Find the number of eggs that are broken.
- (b) The standard rate of income tax is 20% and the higher rate is 42%.
Orla has a gross income of €58 000 for the year and a standard-rate cut-off point of €35 000.
- (i) Calculate the amount of tax due at the standard rate.
- (ii) Calculate the total amount of gross tax due.
- (iii) Orla has tax credits of €3400 for the year.
After tax is paid, what is Orla's income for the year?
- (c) A faulty petrol pump actually delivers 1.02 litres of petrol for every 1 litre that the pump registers. During one day the pump registers 2650 litres.
- (i) What was the actual volume of petrol delivered?
- (ii) Customers paid 85 cent for every litre of petrol registered.
Find the total amount paid for the petrol.
- (iii) If the pump had registered the correct volume delivered, how much more would have been paid?

SOLUTION

1 (a)

It is very useful when doing percentage problems to turn percentages into decimals. All you do is move the decimal point two places to the left.

$2.5\% \text{ of } 240 = 0.025 \times 240 = 6 \text{ eggs [OF means multiply.]}$

1 (b)

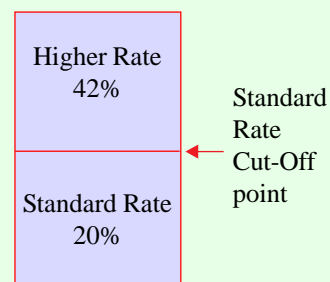
Net Tax = Gross Tax – Tax Credits
Take home pay = Gross Income – Net Tax

(i) Gross Tax

€35,000 at 20%: $€35,000 \times 0.2 = €7,000$

(ii) €23,000 at 42%: $€23,000 \times 0.42 = €9,660$

Total Gross Tax = €16,660



(iii) Net Tax = Gross Tax – Tax Credits = €16,660 – €3,400 = €13,260

Take home pay = Gross Income – Net Tax
= €58,000 – €13,260 = €44,740

1 (c)(i) Actual volume: $2650 \times 1.02 = 2703$ litres

(ii) Amount paid: $2650 \times 0.85 = \text{€}2252.50$

(iii) Amount that should have been paid: $2703 \times 0.85 = \text{€}2297.55$

Extra amount that should have been received: $\text{€}2297.55 - \text{€}2252.50 = \text{€}45.05$