

ARITHMETIC (Q 1, PAPER 1)

2009

- 1 (a) Conor and Alice share 50 apples in the ratio 3:7.
- (i) How many apples does Conor get?
 - (ii) How many apples does Alice get?
- (b) Barbara works 35 hours a week and she is paid €12.60 per hour.
- (i) Find her total weekly pay.
 - (ii) Barbara pays tax at the rate of 20% on all her income and has weekly tax credits of €53. Calculate her weekly take-home pay.
 - (iii) In one particular week, Barbara worked 4 additional hours at the same rate of pay. By how much did her take-home pay increase that week?
- (c) €7500 was invested for 2 years at $r\%$ per annum compound interest.
- (i) The amount of the investment at the end of the first year was €7860. Find the value of r .
 - (ii) At the start of the second year € X was withdrawn from the account. The interest earned during the second year was €252. Find the value of X .

SOLUTION

1 (a)

Conor: $\frac{3}{10} \times 50 = 15$ apples

Alice: $\frac{7}{10} \times 50 = 35$ apples

1 (b) (i)

Total pay: $\text{€} 12.60 \times 35 = \text{€} 441$

1(b) (ii)

Gross Tax: $\text{€} 441 \times 0.2 = \text{€} 88.20$

Net Tax: $\text{€} 88.20 - \text{€} 53 = \text{€} 35.20$

Take home pay: $\text{€} 441 - \text{€} 35.20 = \text{€} 405.80$

1 (b) (iii)

Total pay: $\text{€} 12.60 \times 39 = \text{€} 491.40$

Gross Tax: $\text{€} 491.40 \times 0.2 = \text{€} 98.28$

Net Tax: $\text{€} 98.28 - \text{€} 53 = \text{€} 45.28$

Take home pay: $\text{€} 491.40 - \text{€} 45.28 = \text{€} 446.12$

Increase in pay: $\text{€} 446.12 - \text{€} 405.80 = \text{€} 40.32$

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

1 (c) (i)

$$\text{€}7500 \times x = \text{€}7860$$

$$\therefore x = \frac{7860}{7500} = 1.048$$

$$\therefore r = 4.8\%$$

1 (c) (ii)

$$(7860 - X) \times 0.048 = 252$$

$$7860 - X = \frac{252}{0.048}$$

$$7860 - X = 5250$$

$$7860 - 5250 = X$$

$$\therefore X = \text{€}2610$$