Worksheet 2015-9ƐJ-00001(1) Financial Mathematics – Profit, loss and VAT

[Where necessary, round off to 2 decimals.]

(1) Calculate the selling price, including VAT, of the following items:

(a) Cost is R820, with a profit of 25%.

Profit = 25 % of R820

∴ Profit = R205

∴ SP = CP + Profit = R820 + R205

∴ SP = R1 025

(b) Cost is R25, with a loss of 8%.

Loss = 8 % of R25

∴ Loss = R2

∴ SP = CP − Loss = R25 − R2

∴ SP = R23

(c) Marked price of R455, excluding VAT.

VAT = 14 % of R455

∴ VAT = R63,70

∴ SP = Marked price + VAT = R455 + R63,70

∴ SP = R518,70

(d) Marked price of R3 456, excluding VAT, with a 15% discount.

Discount = 15 % of R3 456

= R518,40

∴ SP = Marked price − discount

= R3 456 − R518,40

∴ SP = R2 937,60

(2) A new suitcase is purchased for R450. It is resold at R380.
Calculate the percentage of profit or loss

Loss = R450 − R380 = R70

% Loss = $\frac{70}{450} \times \frac{100}{1}$

∴ % Loss = $15,\dot{5}$ %

(3) A shopkeeper purchases 20 containers with sharpeners. The shopkeeper pays a total of R1 468,80 for the sharpeners. Each container contains 12 sharpeners. He sells the sharpeners at an 80% profit. In the first month, he sells 14 full containers as well as 4 sharpeners from the fifteenth container. Calculate his total profit on the sharpeners for the first month.

(*) Number of sharpeners sold in the first month

$= 14 \times 12 + 4 = 172$

(*) CP per sharpener = $\frac{1\,468,80}{20 \times 12}$ = R6,12

(*) Profit per sharpener = R6,12 × 80 % = R4,90 (4,896)

(*) Total profit = 172 × R4,90

= R842,80

(4) Connie purchases 24 dozen muffins to sell at a sports day. If she purchased the muffins for R345,60 and her total income for the sales was R604,80, calculate her profit percentage. She sold all the muffins.

Profit = R604,80 − R345,60

= R259,20

Profit percentage = $\frac{259,20}{345,60} \times \frac{100}{1}$

∴ Profit % = 75 %

(5) Catherine purchases the following at a supermarket. The prices do NOT include VAT.

Item	Number	Price per item	Exempt from VAT
Bottle of tomato sauce	2	R21,25	No
Brown bread	4	R11,52	Yes
2,5 kg rice	1	R22,80	Yes
500 ml cream	2	R24,89	No

Calculate the total amount, including VAT, that Catherine paid for all the items in the above table.

Tomato sauce (VAT incl): R21,25 × 114% = R24,23

500 ml cream (VAT incl): R24,89 × 114% = R28,37

Total:

Tomato sauce = 2 × R24,23 = R48,46

Brown bread = 4 × R11,52 = R46,08

Rice = 1 × R22,80 = R22,80

Cream = 2 × R28,37 = R56,74

Total = R174,08 (VAT incl)