

Worksheet 2015-8EH-00005(1)

Calculate the following if SP $\rightarrow$ selling price and cost price $\rightarrow$ CP:

- (a) SP if the CP = R230 000 with a loss of 18%.

$$\begin{aligned}\text{Loss} &= 18\% \text{ of CP} \\ &= \frac{18}{100} \times \frac{230\,000}{1} \\ &= R41\,400\end{aligned}$$

$$\begin{aligned}\text{SP} &= \text{CP} - \text{Loss} = R230\,000 - R41\,400 \\ &= R188\,600\end{aligned}$$

- (b) Loss/profit if SP = R520,56 and CP = R481,44.

$$\text{SP} = \text{CP} + \text{profit}$$

$$R520,56 = R481,44 + \text{profit}$$

$$\begin{aligned}\therefore \text{Profit} &= R520,56 - R481,44 \\ &= R39,12\end{aligned}$$

- (c) CP if SP = R900 and a profit percentage of 20%.

$$\text{Let CP} = x$$

$$\begin{aligned}\therefore \text{Profit} &= 20\% \text{ of CP} \\ &= \frac{20}{100} \times x\end{aligned}$$

$$\text{Profit} = 0,2 \times x = 0,2x$$

$$\therefore \text{SP} = \text{CP} + \text{profit}$$

$$R900 = 1x + 0,2x$$

$$900 = 1,2x$$

$$\therefore x = \frac{900}{1,2}$$

$$x = 750$$

$$\therefore \text{CP} = R750$$

- (d) CP if CP : SP = 2 : 3 and if the SP = R711.

$$\frac{\text{CP}}{\text{SP}} = \frac{2}{3}$$

$$\therefore \frac{\text{CP}}{R711} = \frac{2}{3}$$

$$\frac{\text{CP}}{R711} \times \frac{R711}{1} = \frac{2}{3} \times \frac{R711}{1}$$

$$\text{CP} = R474$$

(2) If the exchange rate is: pula = 0,92 : 1, calculate:

(a) how many pula are equal to 1 rand.

$$R : P = 0,92 : 1$$

$$\frac{R}{P} = \frac{0,92}{1}$$

$$\therefore R_1 = P_{0,92}$$

(b) how many rand can be exchanged for 300 pula.

$$P_{300} = R \frac{300}{0,92}$$

$$P_{300} = R_{326,09}$$

(c) how many pula can be exchanged for R3 456.

$$R_1 = P_{0,92}$$

$$\therefore R_{3456} = P_{0,92} \times 3456$$
$$= P_{3179,52}$$

(d) how many dollar can be exchanged for 6 000 pula, if \$1 = R6,66.

$$P_{6000} = R \frac{6000}{0,92}$$

$$P_{6000} = R_{6521,73} \dots$$

$$\text{but } \$1 = R_{6,66}$$

$$R_{6,66} = \$1$$

$$\therefore R_{6521,73} \dots = \$ \frac{6521,73 \dots}{6,66}$$
$$= \$ 979,24$$

$$\therefore R_{6000} = \$ 979,24$$

(3) Calculate the simple interest earned if:

(a) R400 are invested for 6 years at 8% pa.

$$\begin{aligned} \text{Interest} &= A - P = ? & A &= P(1 + i \times n) \\ A &= ? & &= 400 (1 + 0,08 \times 6) \\ P &= R400 & A &= R592 \\ i &= 8\% \text{ pa} = \frac{8}{100} = 0,08 & \therefore \text{Interest} &= R592 - R400 \\ n &= 6 \text{ years} & &= R192 \end{aligned}$$

(b) R2 569 are invested at 12,1% pa for 18 years.

$$\begin{aligned} \text{Interest} &= A - P = ? & A &= P(1 + i \times n) \\ A &= ? & &= 2569 (1 + 0,121 \times 18) \\ P &= R2 569 & A &= R8 164,28 \\ i &= 12,1\% \text{ pa} = \frac{12,1}{100} = 0,121 & \therefore \text{Interest} &= R8 164,28 - R2 569 \\ n &= 18 \text{ years} & &= R5 595,28 \end{aligned}$$

(c) R890 are invested at 0,7% pm for 20 months.

$$\begin{aligned} \text{Interest} &= A - P = ? & A &= P(1 + i \times n) \\ A &= ? & &= 890 (1 + 0,007 \times 20) \\ P &= R890 & A &= R1 014,60 \\ i &= 0,7\% \text{ pm} = 0,007 & \therefore \text{Interest} &= R1 014,60 - R890 \\ n &= 20 \text{ months} & &= R124,60 \end{aligned}$$

(4) Samuel decides to invest 40% of his annual bonus. His bonus for December 2008 is R12 400. If he will earn 7,4% p.a, simple interest, calculate the amount available to him (in his bonus investment) at the time that he receives his bonus in December 2010.

$$40\% \text{ of } R12 400 = R4 960$$

$$\begin{aligned} A &= ? & A &= P(1 + i \times n) \\ P &= R4 960 & &= 4960 (1 + 0,074 \times 2) \\ i &= 7,4\% \text{ pa} = 0,074 & A &= R5 694,08 \\ n &= 2 \text{ years} & & \\ & (2008 \rightarrow 2010) & & \end{aligned}$$

- (5) R8 500 is invested for $3\frac{1}{2}$ years at 6% pa, simple interest. After the $3\frac{1}{2}$ years the accumulated amount will be invested for a further $2\frac{1}{2}$ years at a simple interest rate of 6,5% pa.

Calculate the accumulated amount after the six years.

$$\begin{aligned} \textcircled{1} \quad A &= ? & A &= P(1 + i \times n) \\ P &= R8\,500 & &= R8\,500(1 + 0,06 \times 3\frac{1}{2}) \\ i &= 6\% \text{ pa} = 0,06 & A &= R10\,285 \\ n &= 3\frac{1}{2} \text{ years} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad A &= ? & A &= P(1 + i \times n) \\ P &= R10\,285 & &= 10\,285(1 + 0,065 \times 2\frac{1}{2}) \\ i &= 6,5\% = 0,065 & A &= R11\,956,31 \\ n &= 2\frac{1}{2} \text{ years} \end{aligned}$$

- (6) In March 2009 the average exchange rate was $R1 = \$0,116$ and in March 2010 the average exchange rate was $\$1 = R8,98$. For which year was the rand at its strongest opposed to the dollar?

$$\begin{aligned} 2009: \quad R1 &= \$0,116 \\ \$0,116 &= R1 \\ \therefore \$ \frac{0,116}{0,116} &= R \frac{1}{0,116} \\ \therefore \$1 &= R8,62 \end{aligned}$$

$$2010: \quad \$1 = R8,98$$

$\therefore$ Rand was strongest in 2009