SENIOR SECONDARY INTERVENTION PROGRAMME 2013

GRADE 12

MATHEMATICAL LITERACY

LEARNER HOMEWORK SOLUTIONS

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LEARNER HOMEWORK SOLUTIONS

> **SOLUTIONS TO HOMEWORK: SESSION 1**
> **TOPIC 1: PERSONAL AND BUSINESS FINANCE PART I**

QUESTION 1

1. General Formula: $A = P(1 + \dfrac{r}{100})^n$

   New interest rate: $\dfrac{r}{4}$ ✓   New term: $n.4$ ✓

   New Formula: $A = P(1 + \dfrac{r/4}{100})^{4n}$ ✓✓   [4]

QUESTION 2

a. New rate: 4/12=0,3333% ✓
    New term: 12 times 5 = 60 ✓

$A = 12000(1 + \dfrac{0,3333}{100})^{60}$ ✓✓✓

$= R14651,96$ (5)

b. Use unchanged formula
    $A = 12000(1 + 0,045)^5$ ✓✓✓
    $= R14954,18$ (3)

c. Simple Interest Formula
    $A = 12000 + 12000 \cdot 0,05 \cdot 5$ ✓✓✓
    $= R15000,00$ (3)

d. The rate is given as 12% for 30 months.
    There are only two sets of 30 months in five years, so the term is 2
    $A = 12000(1 + 0,12)^2$ ✓✓✓
    $= R15052,80$ (3)

    [14]

QUESTION 3

a. Use the formula

$$A = 1500 \frac{(1+0,12)^{35} - 1}{0,12} \checkmark\checkmark\checkmark\checkmark$$ (5)

$$A = R64749524$$

b. 1500 x 12 x 35 = R630 000 $\checkmark\checkmark$ (2)

c. $\dfrac{64749524}{630000} \cdot 100 = 102,78\% \checkmark\checkmark$ (2)

   This is a 2,78% increase over the period.

d. Yes she can$\checkmark$ (1) $R = \dfrac{850000 \cdot 0,12}{(1+0,12)^{35} - 1}$ $\checkmark\checkmark\checkmark\checkmark\checkmark$(5)

e. Use the formula $R = 196913$

[15]

SOLUTIONS TO HOMEWORK: SESSION 1
TOPIC 2: TAX, INFLATION, INTEREST, EXCHANGE RATES, CURRENCY
**   FLUCTUATIONS**

QUESTION 1

1.1   Total amount to spend:
$89,4 + 88,2 + 30,4 + 105,5 + 45,3 + 62,7 + 56,1 + 75,8 + 46,7 = 600,1\text{bn}$✓✓   (2)

1.2   Education 2006/2007:
$17,8\% \, of \, R474,7bn = \dfrac{17,8}{100} \cdot 474,7 = R84,4966bn$ ✓✓   (2)

1.3.1   Transport: $7,8\% - 6,7\% = 1,1\%$ ✓✓   (2)

1.3.2   The government lays more emphasis on that sector. This means they are giving more money to projects that aid that sector. This will impact the community as there will be more funds available for specific areas of development. ✓✓   (2)

1.3.3   The government lays less emphasis on that sector than before. This means that the projects that needed to have been financed in the previous year, may have been completed, or that the government wishes to balance funds better between the sectors. ✓✓   (2)
[10]

QUESTION 2

2.1   Thomas exchanged R8 500,00 at an exchange rate of R7,14.
$R8500 \div 7,14 = R1\,190,48$✓✓✓   (3)

2.2   Thomas now exchanges at a rate of R7,52 to the Dollar.

$R8500 \div 7,52 = R1\,130,32$✓✓✓   (3

2.3 $R1\,190,48 - R1\,130,32 = R60,16$✓✓   (2)

2.4   At R7,14 the pants cost: $7,14 \cdot 43,95 = R313,80$✓✓
        At R7,52 the pants cost: $7,52 \cdot 43,95 = R330,50$✓✓   (4)

2.5   As the rand strengthens against the dollar foreign goods become cheaper, i.e. we spend less rand on the same item. This can cut our costs significantly. ✓✓(2)
[14]

SOLUTIONS TO HOMEWORK: SESSION 2
TOPIC 1: LENGTH, DISTANCE, PERIMETERS AND AREAS OF POLYGONS

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1. a) 350 cm ✓
    b) 0,65 litres ✓   **[2]**

2. P = 2(0,18 + 1,2)   ✓   (1M converting 180cm = 0,18m)
    P = 2,76m   ✓   (1M correct answer using the perimeter formula)   **[2]**

3.1. P = 2L + 2B
      P = 2(78) + 2(36)   ✓   (1M correct calculation)
      P = 228 ft   ✓   (1M correct answer using the perimeter formula)   (2)

3.2. A = L x B   ✓   (1M using correct formula for area)
      A = 78 x 36   ✓   (1M correct substituting of digits)
      A = 2 808 ft   ✓   (1M correct anser using "feet")   (3)
                                                                                      [5]

4. If a = 6 and s = 5
    A = $\frac{aP}{2}$ ✓   (1M correct formula using correct P, P = sn)
                                  (**Remember:** a = apothem; s = length of each side;
    A = $\frac{6(5 \times 8)}{2}$ ✓ n = number of sides; P = Perimeter)
                                  (1M correct substitution)
    A = $\frac{240}{2}$
    A = 120   ✓   (1M correct answer)   **[3]**

5. P = 4L   ✓
    P = 4(4)   ✓
    P = 16km   ✓   (1M correct answer)   **[3]**

SOLUTIONS TO HOMEWORK: SESSION 2
TOPIC 2: SURFACE AREA & VOLUME

QUESTION 1

1.1   i) 7,60 m √   (1)

   ii) Volume = 11 X 7,60 X 0,17√ = 14,212 m³√√
        (Remember to convert 17 cm to 0,17m)   (3)

   iii) 14,212 ÷ 6 = 2,36 ≈ 3 loads of concrete. √√
         We have to round up as 2 loads of concrete will not be enough. √√   (4)

1.2   Diameter = 0,5 m So r = 0,25m√
        Volume of a cylinder = π× r^2 × h
                          = π X $(0,25)^2$ X 2,4√√
                          = 0,47 m³√   (4)

1.3   15, 30, 45 .... √
        17 X 15 = 255 cm√   (2)

                                                                                                                   [14]