NATIONAL
SENIOR CERTIFICATE

GRADE 12

JUNE 2022

MATHEMATICAL LITERACY P1

MARKS: 100

TIME: 2 hours

This question paper consists of 13 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.

2. Number the answers correctly according to the numbering system used in this question paper.

3. Diagrams are not necessarily drawn to scale, unless stated otherwise.

4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.

5. Round off ALL final answers according to the context used, unless stated otherwise.

6. Indicate units of measurement, where applicable.

7. Start EACH question on a NEW page.

8. Show ALL calculations clearly.

9. Write neatly and legibly.

QUESTION 1

1.1   An item costing R380 was reduced by 18,25% for Black Friday's sales on 26/11/2021.

     1.1.1   Write 18,25% as a common fraction in its simplest form.   (2)

     1.1.2   Calculate the price after the reduction.   (3)

1.2   Infrastructure spending by nine provincial governments during the 2018/19 fiscal year show an overall fall in capital expenditure. TABLE 1 below shows the details.

     TABLE 1:   NINE PROVINCIAL GOVERNMENTS CAPITAL EXPENDITURE DURING THE 2018/19 FISCAL YEAR

Western Cape	R469 million (9,7%)
Mpumalanga	R300 million (8%)
-R265 million (-17,4%)	Northern Cape
-R277 million (-11,8%)	Free State
-R326 million (-6,9%)	Eastern Cape
-R390 million (-7,7%)	Gauteng
-R447 million (-19,2 %)	Limpopo
-R458 million (-5,9 %)	KwaZulu-Natal
-R486 million (-18,7 %)	North West

[Source: www.statssa.gov.za, June 2020.]

Use the above information to answer the questions that follow.

     1.2.1   Determine the difference in capital expenditure of the province that had the highest increase and the province with the highest decrease.   (2)

     1.2.2   Calculate the total (for nine provinces) provincial capital expenditure in the previous fiscal year 2017/2018.   (2)

1.3   Mr Boss works at the car washing site. He is contracted to wash cars at a normal rate of R25 per hour. He gets paid $1\frac{1}{2}$ his normal wage rate on weekends for the hours worked.

Use the above information to answer the following question.

     1.3.1   Calculate the wage rate per hour on weekends.   (2)

     1.3.2   Boss worked 6 hours on Friday, 27/05/2022, and 4 hours on Saturday, 28/05/2022. Calculate the money earned for the two days mentioned.   (3)

1.4   In the last soccer season, the first soccer teams at Gunni High School for boys and girls, scored several goals in the games they played. The information is displayed in the graph below.

GRAPH SHOWING GOALS SCORED AND FREQUENCY
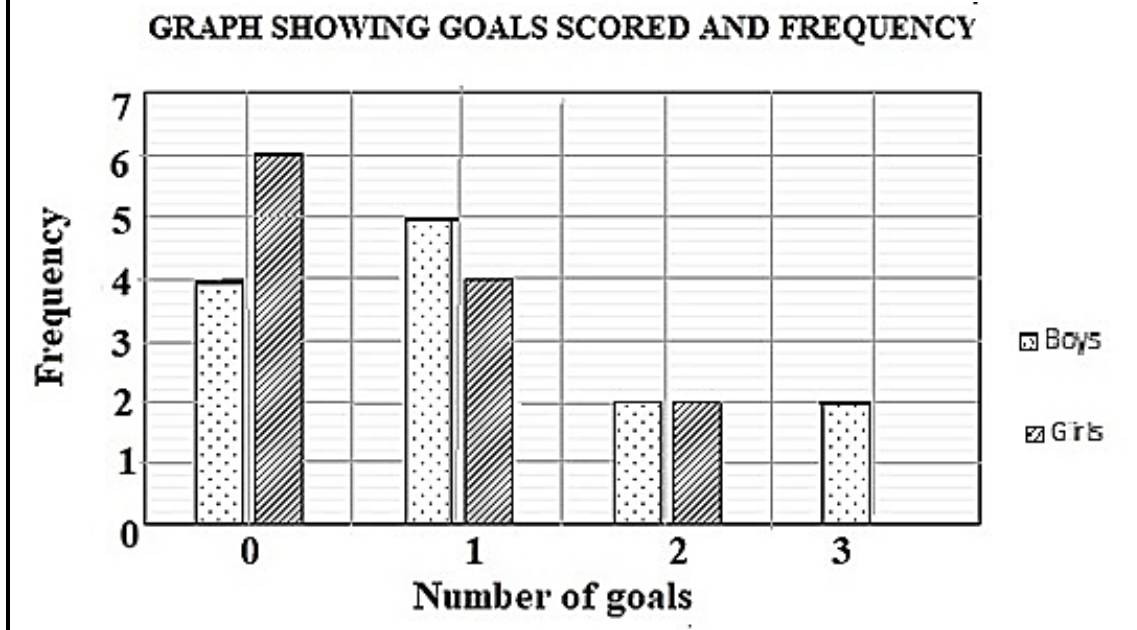
Use the above information to answer the questions that follow.

1.4.1   Is the data 'discrete' or 'continuous'?   (2)

1.4.2   In how many games did the girl's team score one (1) goal?   (2)

1.4.3   Determine the total number of games played by the two teams in the soccer season.   (2)

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QUESTION 2

2.1   A welding company produces burglar frames for windows and doors. In order to complete one frame, one welder needs 8 hours.

The graph below shows the time it takes versus the number of welders to complete the welding of a safety frame.
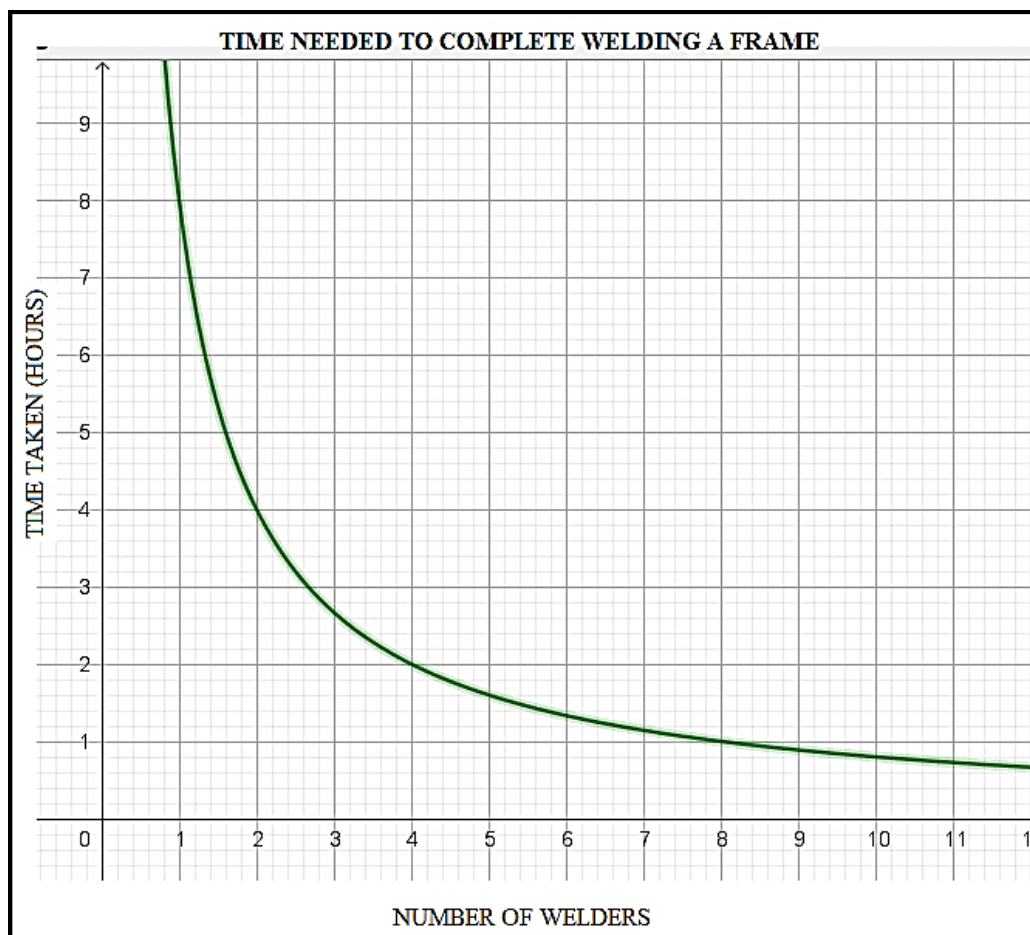
Use the above information to answer the questions that follow.

2.1.1   Determine the time taken for two welders to complete one frame.   (2)

2.1.2   The manager has 20 welders available. Calculate the number of frames they will complete in 4 hours.   (4)

2.2   TABLE 2 below shows Ethekwini Municipality's water tariffs for 2021/2022 (effective from 01/07/2021).

Block	Description (For exclusive domestic consumption) **Monthly consumption (kilolitres)**	2020/2021 Tariff (Excluding VAT) before increase **Rate per kℓ (R)**	2021/2022 Tariff (Excluding VAT) after increase **Rate per kℓ (R)**	% Increase	2021/2022 Tariff (Including VAT) After increase **Rate per kℓ (R)**
1	Up to 6 kℓ	Nil	Nil		Nil
2	Greater than 6 kℓ up to 25 kℓs	18,87	20,52	8,7	23,60
3	Greater than 25 kℓ up to 30 kℓs	25,81	28,00	**A**	32,20
4	Greater than 30 kℓ up to 45 kℓs	56,91	61,74	8,5	71,00
5	Greater than 45 kℓ	62,58	67,91	8,5	78,10

[Source: www.durban.gov.za. Accessed on 26 August 2021.]

Use the information in TABLE 2 above to answer the questions that follow.

2.2.1   Calculate the value of **A**, the percentage increase in a row indicated by Block 3.   (3)

2.2.2   Calculate the water bill VAT (15%) inclusive and after increase for the family that used 30 kℓ of water in October 2021.   (5)

2.3 Below is a bank statement for Ms Lerato for the month of March 2022. Use the account statement below to answer the questions that follow.

> GOODWIILL BANK
> 3 Main Street
> TASO
> 15 March 2022
>
> Lerato
> 7 South Street
> Sado Township
> TASO
>
> ELITE CURRENT ACCOUNT   Account number: 07 632 346 2

Details	Service Fee	Debits	Credits	Date	Balance
Balance brought forward				02:15	2 875,77-
Statement costs	#	20,18-		02:17	2 895,95-
Card purchase		296,10-		02:20	3 192,05-
Salary			**B**	02:21	15 761,80
Insurance premium		187,27-		02:25	15 574,53
Dividend YY4098 shares			840,00	02:28	16 414,53
Bond		4 069,52-		03:02	12 345,01
Auto Bank deposit			1 200,00	03:05	13 545,01
Fee cheque deposit	#	42,37-		03:05	13 502,64
Fuel CLTX Garage		729,45-		03:07	12 773,19
ATM withdraw		1 800,00-		03:10	10 973,19
Withdrawal fee	#	17,47-		03:10	10 955,72
Fixed monthly fee	#	100,88-		03:11	10 854,84
Balance carried forward				03:15	10 854,84

Use the above information to answer the questions that follow.

2.3.1   Determine the salary **(B)** paid into her account on 21/2/2022.   (2)

2.3.2   Calculate the total bank fees charged in March 2022.   (2)

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QUESTION 3

The income from accommodation from 2018 to 2020 is shown below. It excludes restaurant sales, bar sales and 'other' income. Study the information in the table and answer the questions that follow.

TABLE 3: INCOME FROM ACCOMMODATION AT CURRENT PRICES (R MILLION)

Month	2018	2019	2020
January	2 166,9	2 093,5	2 191,5
February	2 161,1	2 092,8	2 262,3
March	2 244,9	2 249,4	1 311,7
April	1 936,2	1 988,8	40,3
May	1 698,1	1 750,5	33,8
June	1 683,0	**C**	105,3
July	1 911,5	1 964,7	177,5
August	1 974,3	2 067,1	362,5
September	2 052,5	2 204,4	590,7
October	2 267,8	2 308,0	774,4
November	2 282,4	2 267,8	767,6
December	2 467,7	2 493,4	1 200,9
TOTAL	**24 846,4**	**25 285,1**	**9 818,5**

3.1   Write down the year that received the least income from accommodation. Give a possible reason for that.   (2)

3.2   Calculate the value of **C**.   (3)

3.3   Arrange the income from accommodation for the year 2019 in descending order.   (2)

3.4   Calculate the range for the year 2020.   (3)

3.5   The mean income for the year 2018 is more than double the mean income for 2020. Verify the statement.   (6)

3.6   Explain the trend in December's income from 2018 to 2020.   (2)

3.7   Mention the months where the income in 2019 was less than R1 900 000 000.   (2)

                                                         [20]

QUESTION 4

4.1

> Tony sells biscuits at school for R15 per packet.
>
> - He rents a small store at school for R200 per week and buys biscuits in bulk at a cost of R5 per packet.
> - He formulated Income and Expenses equations and drew graphs to assist him determine the break-even point for his business.
> - **Expenses = R200 + 5 × *n*** (where *n* represents the number of biscuits)
> - **Income = R15 × *n*** (where *n* represents the number of biscuits)

INCOME AND EXPENSES OF BISCUITS SALES
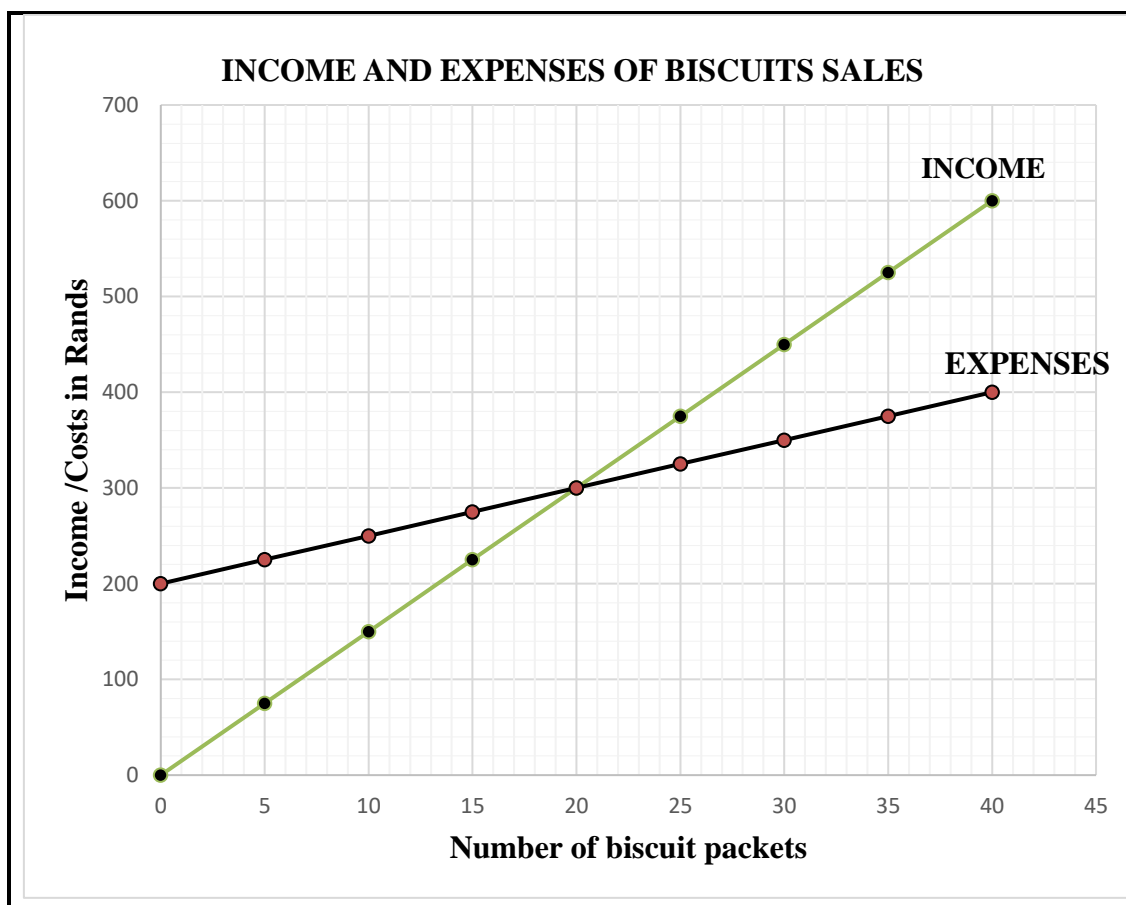
Use the above information and the graph to answer the questions that follow.

4.1.1   Use the graph to determine the value of dependent variable(s) at the break-even point.   (2)

4.1.2   Use the graph or otherwise to determine the profit made in a week given the sales indicated below. Friday was a holiday and there was no school.

Day	Monday	Tuesday	Wednesday	Thursday
Number of biscuit packets sold	5	10	7	15

(4)

4.2 The graph below shows the average education inflation rate (education CPI) for South Africa's education compared to the general inflation (headline CPI) for the period 2009 to 2015.

SOUTH AFRICA'S AVERAGE EDUCATION INFLATION COMPARED TO GENERAL INFLATION FROM 2009 TO 2015
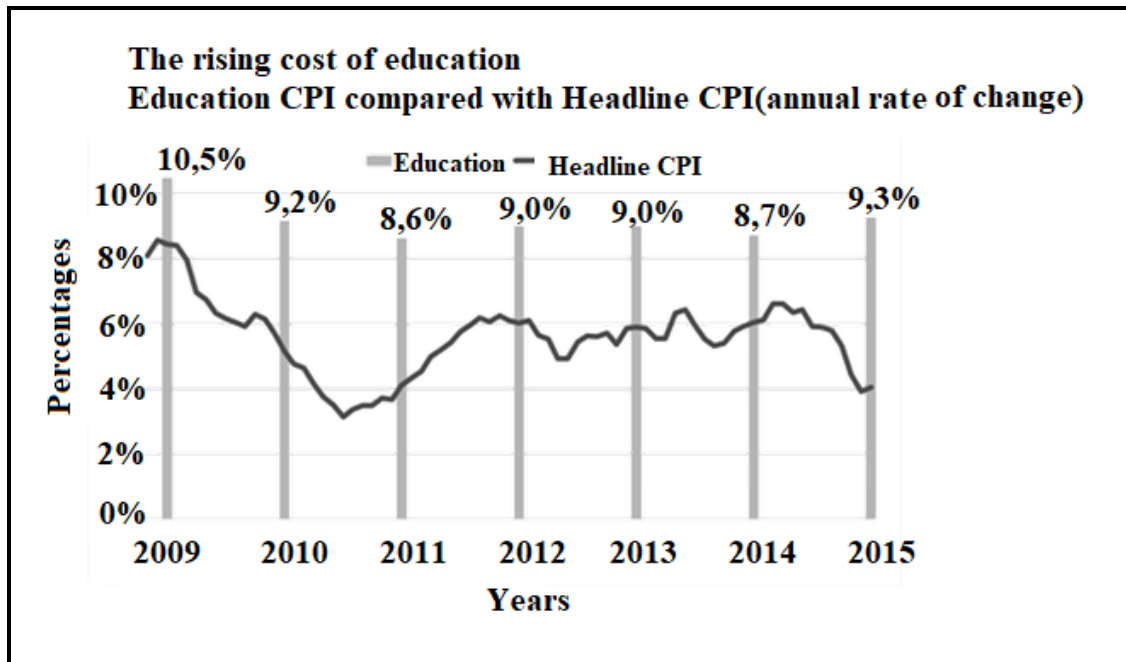
[Source: Statista.com /370515/Inflation rate in South Africa. Accessed on 21 October 2021.]

Use the above information on the graph to answer the questions that follow.

4.2.1 Write down the year when the difference between the education inflation and general inflation was the smallest. (2)

4.2.2 In 2014 an institution charged R12 500 for fees that was the equivalent cost for a good fridge in the same year. Calculate the difference between the fees charged in 2015 by the same institution and the cost of a similar fridge based on the above inflation rates. (3)

4.2.3 Briefly explain the trend displayed between education inflation and general inflation for the period from 2009 to 2015. (2)

4.3   TABLE 4 below gives the exchange rates between South African Rands (ZAR) and some of the foreign currencies at a forex bureau on the 4 January 2022.

TABLE 4: CURRENCY EXCHANGE RATE

CURRENCY	SYMBOL	EXCHANGE RATE
US dollar	$	$1/R16,04
Pound sterling	£	£1/R21,70
Euro	€	€1/R18,11
Japanese yen	¥	¥1/R0,1383
Botswana pula	P	P1/R1,37

[Source: http://www.xe.com>currency converter. Accessed on 21 November 2021.]

Use the above information to answer the questions that follow.

4.3.1   Arrange the six currencies, including the Rand in order starting with the strongest value in terms of the currency/Rand exchange rates.   (2)

4.3.2   Mr Buti an importer bought 500 Aura DVD portable players from Japan.
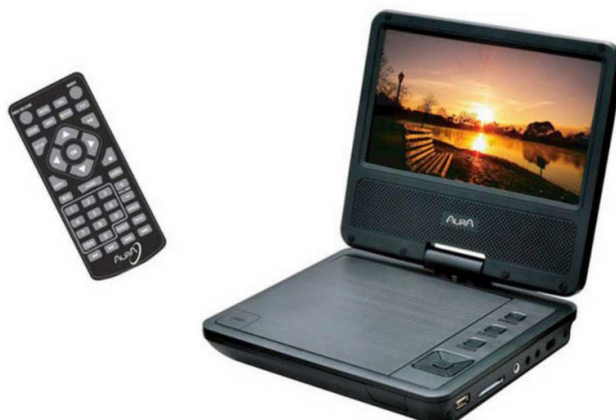
•   The cost price in Japan is Japanese yen ¥3 974,85 per player.

Calculate the cost price of 500 DVDs in Rands.   (3)
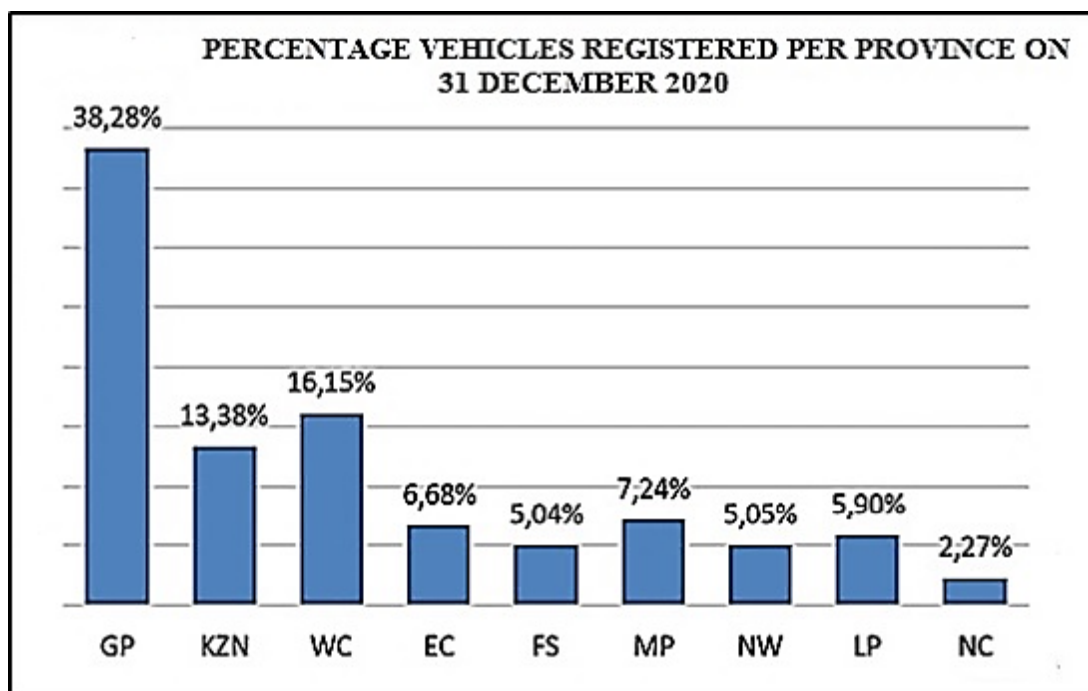
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QUESTION 5

5.1   TABLE 5 below shows the rates at which tax was levied to individuals in South Africa for the 2020/2021 tax year.

RATES APPLICABLE TO INDIVIDUALS 2021 TAX YEAR (1 MARCH 2020 – 28 FEBRUARY 2021)		
Tax Bracket	**Taxable Income (R)**	**Rates of Tax (R)**
1	1 – 205 900	18% of taxable income
2	205 901 – 321 600	37 062 + 26% of taxable income above 205 900
3	321 601 – 445 100	67 144 + 31% of taxable income above 321 600
4	445 101 – 584 200	105 429 + 36% of taxable income above 445 100
5	584 201 – 744 800	155 505 + 39% of taxable income above 584 200
6	744 801 – 1 577 300	218 139 + 41% of taxable income above 744 800
7	1 577 301 and above	559 464 + 45% of taxable income above 1 577 300
Rebates	**Value**	**Tax threshold**
*Below age 65	R14 958	R83 100
*Age 65 to below 75	R8 199	R128 650
*Age 75 and above	R2 736	R143 850

[Source: *South African Revenue Service. Tax Pocket Guide 2020/2021*]

5.1.1   Write down the tax bracket in which a person who earns R473 496 per year, falls.   (2)

5.1.2   Determine the maximum income a person that is 65 years old must earn before starting to pay tax.   (2)

5.1.3   Mrs Tamryn, a 65-year-old saleswoman, earned a gross monthly salary of R35 455 during the 2020/2021 tax year. 7,5% of her gross salary is deducted for contributions towards her pension fund.
Use the tax table for 2020/2021 and the information above to calculate Mrs Tamryn's annual income tax.   (7)

5.2   The graph below shows the percentage vehicle registration per province on
       31 December 2020.

PERCENTAGE VEHICLES REGISTERED PER PROVINCE ON 31 DECEMBER 2020

- GP: 38,28%
- KZN: 13,38%
- WC: 16,15%
- EC: 6,68%
- FS: 5,04%
- MP: 7,24%
- NW: 5,05%
- LP: 5,90%
- NC: 2,27%

[Source: *Department of Transport Traffic Report 2020*]

Use the above information to answer the questions that follow.

5.2.1   Determine the province with the median percentage vehicle registration in
        December 2020.   (3)

5.2.2   Calculate the inter-quartile range of the percentage vehicle registration of the
        provinces.   (5)

5.2.3   Explain the term *'probability'*.   (2)

5.2.4   Determine the probability (as a decimal) of randomly selecting a vehicle
        registered in GP or in EC.   (3)

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TOTAL: 100