MATHEMATICAL LITERACY

SSIP MAY 2021

PARTICIPANT GUIDE MEMO

MODULE 1: FINANCE

UNIT 1: FINANCIAL DOCUMENTS, TAXATION AND TARIFF SYSTEM

<table>
<tr><td colspan="2" align="center">**ACTIVITY 1.1.1**</td></tr>
<tr><td colspan="2">

- You should form groups of 4 – 5
- Duration: 15 minutes
- Refer to the questions provided
- Task 1: Answer all the questions
  Task 2: Explain allocation of marks for each question
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion
- Resources: Training manual, laptop and Calculator
</td></tr>
<tr><td colspan="2">

Question 1: Adapted from Free State Prelim P1 2021

Table below is an extract from Ms Plaatjies's cellphone contract bill.

COST OF THE DEVICE AND USAGE SUMMARY

Cost of the device:

Description	Starting date	Total cost	Monthly payment	Outstanding commitment value	Current month
Device fee	01/02/2019	R6 399,00	R266,62	R799,98	21 of 24

Usage Summary:

Usage type	Amount used (in minutes)	Amount charged
National Fixed line calls	12	R11,05
Cell C Calls	231	**A**
Other Mobile network Calls	127	R112,25
SMS/MMS Charge	6 SMS's/MMS's	R0,00
Recharge amount		R400,00

Use TABLE 1 and the information provided above to answer the questions that follow:

1.1.   Cost is the amount charged for the device
1.2.   Identify the total cost of the device.
   R266,62 × 24
   = R6 399,00
1.3.   Write down the number of outstanding months for this contract.
   3

</td></tr>
</table>

1.4. Calculate A, the amount charged for Cell C Calls.

A = R400 – R112,25 – R11,05

= R276,70

1.5. Determine the difference between the amounts used for other mobile calls and the amount used for national fixed line calls.

= 127 – 12

= 115 minutes

1.6. Express the monthly payment as a percentage of the outstanding commitment value.

$$\frac{R266,62}{R799,98} \times 100 = 33,33\%$$

Question 2: Adapted: WC 2021 Prelim P1

Ms Prinsloo's salary statement is shown below. She contributes 7,5% of her monthly salary towards the GEPF (Government Employee Pension Fund). Study the salary advise and answer the questions that follow. All amounts are in South African Rand (ZAR)

Pension number		Medical fringe benefit	Notch
99213440		5 434.00	501 660.00
Pay Point	Persal Number	Surname & Initials	Organisation
01/02/168000	24194719	Prinsloo P.S.	Western Cape Education
ID number		Job title	Appointment Date
660918 XXXXXXX		63001 Teacher (Level 4)	1980/02/01

SALARY ADVICE   SALARY ADVICE

Pay Date	Bank:	Account number	Branch	Gross Salary	Deductions	Nett Salary
2021/03/15	ABSA	955520016	632005	43 203,00	....	....

EARNINGS			DEDUCTIONS		
Item	Description	Amount	0001	TAX RSA	10 213,48
0001	Basic Salary	41 805,00	0002	Pension	3 135,90
0004	Housing Allowance	1 398,00	0005	*GEMS: Medical Aid Employer contribution: 5 434,00 Total Member fee:10 330,00	...
			0011	House bond: Standard Bank	3 780,12
			0012	Southern Life Insurance	324,21
			0013	Vehicle Finance	2 214,78
			0214	SACE	15,00
			0213	ELRC	7,50
			0203	SADTU	88,00
			0215	PSCBC	1,45

*Medical Aid contribution = Total Member fee – Employer Contribution

2.1.   Calculate the number of years that Ms Prinsloo has been employed by the Department of Education at the time of the pay date.

Mrs Prinsloo years of service = 2021 – 1980

= 41 years

2.2.   Calculate the housing allowance as a percentage of the gross salary. Give your answer to two decimal places.

$$= \frac{R1398,00}{R43203,00} \times 100 = 0,0323 \times 100 = 3,23\%$$

2.3.   Calculate Ms Prinsloo's Nett salary.

Medical Aid contribution = R 10 330,00 - R 5434,00

= R 4 896,00

Deductions = R (10213,48 + 3135,90 + 3780,12 + 4896.00 + 324,21+2214,78 + 15,00 + 7,50+ 88,00+ 1,45)

Deductions = R22 676,44

Nett salary = Gross salary – Deductions

= R 43 203,00 – R 22 676,44

= R 20 526, 56

2.4. The employee annual package can be calculated by using the following formula:

Annual package = Notch + (Employer Medical Aid Contribution × 12) + (Housing Allowance × 12) Use the formula above to calculate Ms. Prinsloo's annual package.

Annual package = Notch + (Employer Medical Aid Contribution ×12) + (Housing × 12)

Annual package = R501 660,00 +(R5 434,00 × 12) + (R1 398,00 × 12)

= R501 660,00 + R65 208+R16 776,00

= R583 644 per year

-

Activity 1.1.2 (Group Discussion)

Instructions
- You should form groups of 4 – 5
- Duration: 15 minutes
- Refer to the questions provided
- Task 1: Answer all the questions
  Task 2: Allocate marks for each question
  Task 3: Identify the taxonomy levels for each question
- Report Back and Discussion

- Resources: Pen and Calculator

Question 1: Adapted NSC 2021 P1

Marius, who is 64 years old, earned an annual taxable income of R551 762,00 for the 2019/20 tax year. During the 2019/20 tax year Marius was not a member of any medical aid fund.

The table below shows the tax table for the 2019/2020 tax year.

Tax Bracket	Taxable Income (in Rand)	Rate of Tax (in Rand)
1	0 – 195 850	18% of taxable income
2	195 851 – 305 850	35 253 + 26% of taxable income above 195 850
3	305 851 – 423 300	63 853 + 31% of taxable income above 305 850
4	423 301 – 555 600	100 263 + 36% of taxable income above 423 300
5	555 601 – 708 310	147 891 + 39% of taxable income above 555 600
6	708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
7	1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Tax rebate type	2020
Primary	R14 220
Secondary (Age 65 to below 75)	R7 794
Tertiary (Age 75 and older)	R2 601

Medical Aid ~ monthly tax credits	2020
Main member	R310
First dependant	R310
Second dependant	R209
Third dependant	R209

1.1. Identify which tax bracket Marius falls in, based on his taxable income.

Bracket 4

1.2. Calculate the amount of tax Marius must pay for the 2019/20 tax year.

$$100263 + 36\%(551672 - 423300)$$
$$= R146\ 476,92 - R14\ 440(Rebate)$$
$$= R132\ 256,92$$

1.3. Marius stated that if he had been one year older, he would have saved more than R600 monthly on taxes paid during the 2019/20 tax year.

Verify, showing all calculations whether his statement is CORRECT.

Additional rebate

$$R7\ 794 \div 12 = R649,50$$
Which is more than $R600$
$$\therefore The\ statement\ is\ valid.$$

1.4. Marius is considering joining a medical aid fund. He plans to include his wife and two grandchildren.

Determine the total monthly medical credits he would qualify for if he joined a medical aid fund.

Medical aid for 4 people $= 310 + 310 + 209 + 209$
$$= R1038$$

Question 2: Adapted from GP Prelim 2021 P1

Mrs Ndlovu, who is 58 years old, earns a monthly income of R60 000.
Each month she contributes the following from her monthly income:

- Medical aid for herself, her husband and two children

- 7,5% of her basic income is contributed to a pension fund.
- 1% of her basic income is contributed to the UIF (max. R148,72).

Use the information above and the tax rate table in question 1 to answer the questions that follow:

2.1. Calculate Mrs Ndlovu's annual taxable income.

Taxable income= Income – Pension-UIF

$$= R60\,000 - (7,5\% \times R60000) - R148,72$$
$$= R55\,351,28$$
$$R55\,351,28 \times 12 = R664\,215,36$$

2.2. Determine Mrs Ndlovu's annual medical aid tax credits.

R319 × 12 = R3 828

R3 828 × 2 = R7 656

R215 × 12 = R2 580

R2 580 × 2 = R5 160

R7 656 + R5 160

= R12 816

2.3. Mrs Ndlovu stated that her monthly tax contribution is R 9 111,75.

Verify, showing ALL calculations, whether her statement is valid.

$$= R155\,505 + (39\% \times R80\,015,36)$$
$$= R155\,505 + R31205,99$$
$$= R186\,710,99$$
$$R186\,710,99 - R14\,958$$
$$= R171\,752,99$$
$$R171752,99 - R12816$$
$$= R158936,99$$
$$R158935,99 \div 12$$
$$= R13\,244,75$$

Her claim is invalid.

Question 3: Adapted KZN Prelim 2021 P1

Mr Naidoo, aged 46, earns a basic salary of R32 800 per month and receives a monthly car allowance of R7 100. On his birthday (January 2021) he got a bonus equivalent to his basic salary.

The following deductions indicated on from his January 2021 payslip.

- UIF (R148,72).
- Pension Fund (7,5% of his basic salary).
- Income Tax.
- Medical Aid covering 5 members, Mr Naidoo included.

7

N.B: The tax on his bonus is deducted in the month that he receives the bonus.

Use the information above and the Tax rate tables in question 1 to answer the following questions:

3.1. Write down the type and the amount of rebate Mr. Naidoo is entitled to.

Primary Rebate (R14 958)

3.2. Calculate Mr. Naidoo's monthly pension fund deduction.

Monthly Pension Contribution=7,5%×R32 800

=R2 460

3.3. Calculate Mr. Naidoo's taxable income for January 2021.

You may use the formula:

January taxable income = January Gross Income – Pension Fund Deduction

January taxable income=2(R32 800)−R2 460+R7 100

=R70 240

3.4. Calculate his annual medical tax credits (MTC).

Annual MTC=12[2(R319)+3(R215)]

=R15 396

3.5. Use the income tax tables in ANNEXURE C to calculate Mr. Naidoo's monthly tax excluding bonus.

Annual taxable income excluding bonus:

Annual taxable income=12(R39 900−R2 460)

=R449 280

Annual tax excluding bonus:

 Tax=R105 429+36%(R449 280−R445 100)−R14 958− R15 396

=R76 579,80

Monthly tax=R76 579,80÷12

=R6 381,65

3.6. Calculate the tax deducted from Naidoo's January 2021 salary if tax on his bonus was R11 808.

You may use the formula:

January Tax=Monthly tax excluding bonus+bonus tax.

 Tax deducted=R6 381,65+R11 808

 =R18 189,65

ACTIVIT 1.1.3

- You should form groups of 4 – 5
- Duration: 25 minutes
- Refer to the questions provided
- Task 1: Answer all the questions
      Task 2: Identify the taxonomy levels for each question
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion
- Resources: Training manual, laptop and Calculator

Question 1 [MP 2020 P2]

Municipalities get part of their income from the sale of water. Mbombela municipality used the table below to bill its residents for water in 2018/2019.

TABLE 1: MBOMBELA MUNICIPALITY WATER TARIFF STRUCTURE FOR RESIDENTIAL PROPERTIES IN 2018/2019

WATER USAGE	RATES PER KILOLITRE (EXCLUDING 15% VAT)	BASIC FEE (INCLUDING VAT)
$0 \ to \ 6kl$	FREE	$16 \ 327 \ CENTS$
Over $6kl \ to \ 12 \ kl$	$R20,01$	
Over $12 \ kl \ to \ 40 \ kl$	$R27,61$	
Over $40 \ kl$	$R31,10$	

Mrs Sibiya lives with her family in West Acres. They used an average of 26 kilolitres of water in the month of December.

Calculate the amount (in rand) including vat paid to the municipality that month.

Basic Fee= $16 \ 327 \ cents \div 100 = R163,22$

.$(6kl \times R0) + (6kl \times R20,01) = R120,06$

Total= $R120,06 + R163,22$

.= $R283,28 \times \frac{115}{100} \ (Vat \ Incl)$

.= $R325,77$

Question 2 [GP PRELIM 2021]

Electricity can be purchased from Eskom in two ways, prepaid and post-paid.

Below is an adapted, comparative table to answer the questions that follow.

System name	Fixed monthly cost	Cost per unit (c/kWh)	
Prepaid	R200	70,855	
Post Paid	nil	0-50	69,36
		50,1-350	81,60
		350,1-600	127,02
Prices exclude VAT of 15%			

1.1. If a household uses 286 kWh of electricity on the post-paid system, how much would they pay for their electricity consumption, excluding VAT?

$.(50 \times 69,36) + (236 \times 81,60)$

$. = 22725,6$

$. = 22\,725,6 \div 100$

$. = R227,26$

1.2. A household bought electricity for R720, including VAT, on the prepaid system. Determine how much electricity they can use.

Cost Excluding vat: $R720 \times \frac{100}{115} = R626,0869565$

Cost excluding fixed monthly cost: $R626,0869565 - R200$
$$= R426,0869565$$

Cost per unit in Rand: $70,855 \div 100 = R0,70855$

KWh used : $\frac{R426,0869565}{R0,70855} = 601,3505843 = 601,35\ KWh$

Question 3

The parking ticket of Mr Sibiya at OR Tambo airport showed the following information:

> **ACSA parking ticket**
>
> Date of entry: 06 January 2019
> Time: 07:30
> Date of return: 10 January 2019
> Time: 09:15

Table 1: Bram Fischer International parking tariffs.

Duration	Shaded Parking Rand (R)	Open Parking Rand (R)
0 – 5 min	Free	Free
5 min – 1 hour	17	12
1 – 2 hours	23	14
2 – 4 hours	31	17
4 – 12 hours	45	31
12 – 24 hours	100	67
After 24 hours	100× d + R44 for part thereof	67× d + R29 for part thereof

Number of days (full days) = d

	Drop and Go	Lock-Up Garages	
0 – 15min	Free	12 hours or less	R100
15 – 30 min	24		
30 min – 1 hour	58		
1 – 2 hours	117	Full day	R150
2 – 24 hours	244		
Tariffs increase for every additional hour or part thereof with R55			

Lost ticket (If there is no proof of travel) R500

3.1. Determine the amount that Mr Sibiya must expect to pay for using the airport's shaded parking.

From 7:30 of 6 Jan to 7:30 of 10 Jan: 4 full days

From 7:30 to 09:15= 1hr 45 min

Expect to pay: $100 \times day + R44 \; for \; part \; thereof$

=$R100 \times 4 + R44$

=$R444,00$

3.2. Explain each of the following:
- The circumstances under which a person will feel disadvantaged if the parking ticket is lost.
- The length of time for both the shaded and open parking, that a lost parking ticket would be an advantage.

    If Stopping for a short time you pay much more than the amount due.

3.3. What measures are taken to discourage car owners, who must wait for the passengers, to use the drop and go parking?
- The length of time for both the shaded and open parking, that a lost parking ticket would be an advantage.

Open Parking: $R67 \times d + R29 = R500$

d= $7,03 \; days \approx 8 \; days$

Shaded Parking: 5days = $R500$

So, more than 5 days would be an advantage.

ACTIVITY 1.2.1

- You should form groups of 4 – 5

- Duration: 15 minutes

- Refer to the questions provided

- Task 1: Answer all the questions

    Task 2: Explain allocation of marks for each question

- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught

- Report Back and Discussion

- Resources: Training manual, laptop and Calculator
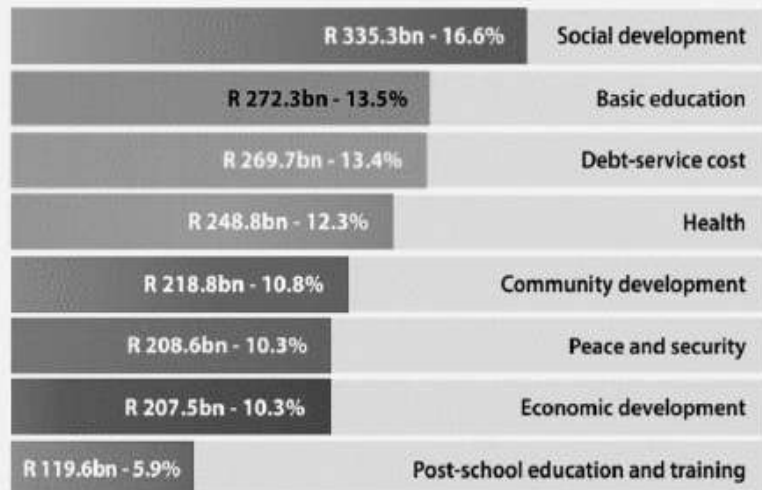
QUESTION 1 [Adapted Limp Prelim 2021]

The Minister of Finance delivers his budget speech at the beginning of the new financial year. The financial year starts on the 1st March of the current year and ends on the last day of February the following year. A summary of the 2021/2022 National budget is shown below.

WHERE THE MONEY COMES FROM AND HOW WILL IT BE SPENT IN 2021/22

GOVERNMENT SOURCES OF INCOME IN 2021/22

R 1 365.1bn	72.6%	Taxes
R 482.6bn	25.7%	Borrowing
R 32.5bn	1.7%	Non-Tax Revenue

GOVERNMENT SPENDING IN 2021/22

R 335.3bn - 16.6%	Social development
R 272.3bn - 13.5%	Basic education
R 269.7bn - 13.4%	Debt-service cost
R 248.8bn - 12.3%	Health
R 218.8bn - 10.8%	Community development
R 208.6bn - 10.3%	Peace and security
R 207.5bn - 10.3%	Economic development
R 119.6bn - 5.9%	Post-school education and training

1.1. Define the term "Budget" according to the given context.
   A list of expected income and expenditure for a set period of time.
1.2. Write down the government's main source of income in the 2021/2022 National budget.
   Taxes
1.3. Calculate the total income received by the National Treasury in 2021/2022.

Total income = (R 1 365,1 + R 482.6 + R 32.5)billion

= R 1 880.2 billion

OR

Total income = R13 651 000 000 + R4 826000 000 + R 32

5000 000

= R 18 802 000 000

1.4. Write down the number of days for this financial year.

12 Months

1.5. Calculate the difference between the amount allocated to Basic Education and the amount allocated to Post School education and training.

Post-school education and training

Question 2 (Adapted from FS Prelim 2021)

Nathan owns a factory that produces and sells leather jackets and leather purses.

The cost of making a leather purse **is R30 000 plus R210 per purse.**

LEATHER JACKET	PURSE

Nathan sells the leather jackets at R500,00 each and the purses at R350 each.

The cost for producing a leather jacket is given by the following formula:

Total production cost of leather jackets $= R54\,000 + (150 \times number\ of\ jackets)$.

Table below shows the total cost and the total income for the jackets.

Number of jackets	0	100	400	700	800	1000
Total cost	54 000	69 000	*C*	159 000	174 000	204 000
Total income	0	50 000	200 000	**350 000**	*D*	500 000

2.1. Explain the meaning of the term break-even in this context.

13

Break-even is when the cost of making leather jackets is equal to the income received from selling the leather jackets.

2.2. Write down the fixed cost for producing leather jackets.

R54 000

2.3. Calculate the missing values C and D.

C = R54 000 + (150 × 400)

= R114 000

D = R500 × 800

= R400 000

2.4. Show with calculations that the total income of selling 600 jackets and 800 purses is 58% of **ONE**

   million rands.

Total income

= (R500 × 600) + (R350 × 800)

= R300 000 + R280 000

= R580 000

As a % of R1 000 000:

= R580 000 ÷ 1 000 000 × 100%

= 58%

ACTIVITY 1.3.1

- You should form groups of 4 – 5
- Duration: 20 minutes
- Refer to the questions provided
- Task 1: Answer all the questions
     Task 2: Explain allocation of marks for each question

- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion
- Resources: Training manual, laptop and Calculator

QUESTION 1 [NSC P1 2021]

1.1. Mrs Smith invested R60 000 at a bank for two years with compound interest. In the first year she received an interest rate of 4,3% per annum while in the second year the interest rate was 5,1% per annum.

Mrs Smith stated that she would have enough money at the end of the second year to pay the residual value of her car of R64 530.

Verify, showing ALL calculations, whether her statement is CORRECT.

Year 1
$$R60\ 000 \times 1,043 = R62\ 580$$

Year 2
$$R62\ 580 \times 1,051 = R65\ 771,58$$

Ford Residual$= \frac{30}{100} \times R215\ 100 = R64\ 530$

$$\therefore Her\ statement\ is\ correct$$

1.2. Musa is building a 4-roomed house for his parents. The house has reached roof level, he needs to buy tiles. Build-it has a special on roof tiles. He needs a loan of R5 000 to buy the tiles. Two options are available to him.

Option 1: ABC Bank can offer him a loan of R5 000 at 7,8% per annum, interest compounded yearly to be repaid over 24 months.

Option 2: His friend can offer him a loan of R5 000 at 9,5% per annum simple interest to be paid back in full at the end of 2 years

1.2.1. Manually calculate the total amount he will pay back to the bank at the end of 24 months for Option 1.

Year 1: $R5000 \times 1,078 = R5390$

Year 2: $R5390 \times 1,078 = R5810,42$

1.2.2. Use your answer for 1.2.1 and total amount for Option 2 to help Musa choose the best option.

R5000 × 9,5% × 2$years$

Final amount$= R5000 + R950$

$=R5950$

Option 1 is best.

1.3. Mandla applied for a loan to the amount of R220 000 to further her studies and wants to repay the loan within 2 years as she got a part time job at the university. She was offered the following options:

Option 1: The interest of the loan is 9% per annum compounded annually.

Option 2: The interest of the loan is charged at 10 % compounded half yearly.

    a) Use calculations to advise her on the best option to choose.
      Option 1:
      Year 1: $R220\,000 \times 1,09 = R239\,800$
      Year 2: $R239\,800 \times 1,09 = R261\,382$

      Option2: Interest 10% ÷2=5%
      1st half of the year: $R220000 \times 1,05 = R231\,000$
      2nd Half: : $R231\,000 \times 1,05 = R242\,550$
      [No need to proceed: Option 1 is best]

    b) If he was investing, which option would be advisable to choose? Explain
      Option 1 because the interest charged will be lesser.

Question 2 (Adapted from MP Prelim 2021)

Stacey is moving into a new flat and wants to buy a bedroom suite. The Corvette 2 piece bedroom suite is on sale at a furniture store as advertised.

CASH PAYMENT: WAS: R16 895 NOW: R12 999

or

HIRE PURCHASE: 10% deposit and R688,00 per month x 36 months.

FREE R2 100 voucher

1.1. Define the term "hire purchase".
   A system by which one pays for a product in regular instalments while having the use of it.
1.2. Calculate the actual discount (in rand) of the bedroom suite.
   R2 100
1.3. Give the value of the voucher one gets when buying a Corvette two piece bedroom suite.
   Discount = R16 895 – R12 999
   = R3 896
1.4. Calculate the percentage discount on the bedroom suite. Answer correct to one decimal place. You may use the following formula:

$$\text{Percentage discount} = \frac{Actual\ disxount}{Original\ price} \times 100\%$$

% discount$= \frac{R3896}{R16\ 895} \times 100$

$$= 23,06007695$$

$$= 23,1\%$$

1.5. Stacey buys the bedroom suite on hire purchase. How much will she pay in total over the Whole term, excluding the deposit?
Total amount = R688,00 × 36
= R24 768

1.6. After two months the cash price further dropped by 15%. Calculate the new cash price for the bedroom suite.
Discount$= \frac{85}{100} \times R12\ 999$
$= R11\ 049,15$

ACTIVITY 1.3.2

- You should form groups of 4 – 5
- Duration: 20 minutes
- Refer to the questions provided
- Task 1: Answer all the questions
  Task 2: Explain allocation of marks for each question
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion

Resources: Training manual, laptop and Calculator

QUESTION 1 [NSC P1 2021]

Mrs Smith would like to buy a car but does not have the full cash amount. She downloaded TWO payment options for TWO different cars as shown in the table below.

ITEM	FORD FIGO	VW POLO
Retail price/Cash price (including VAT)	R215 100	R220 300
Deposit	5%	0%
Monthly instalment	R2 999,00	R3 345,00
Residual value	30%	R116 759
Monthly admin fee (not included in monthly instalment)	R69,00	2,08% of the monthly instalment
Term agreement	72 months	48 months
VAT	15%	15%

*Residual value is the last month's Payment.

1.1.   State what type of payment option is shown in the table above.
Hire Purchase

1.2.   Calculate the deposit amount for the Ford Figo.
$=\frac{2}{100} \times R215\ 100 = R10755$

1.3.   Write down (in simplified form) the ratio of the term agreement of the Ford Figo to the VW Polo.
72 : 48= 3:2

1.4.   Which ONE of the two vehicles will be more cost effective in terms of monthly budget?

Ford Figo

1.5.   Calculate the total cost of the VW Polo if the monthly instalment remained the same throughout the contract period, except for the final payment.

You may use the following formula:

Total cost: Total value of monthly instalments + admin fees+ residual value

$(R3345 \times 47months) + (2,08\% \ of \ 3345 \times 47) + 116\ 759$

$$= R277\ 244,07$$

QUESTION 2 [EC P1 2020]

Mr Tau plans to renovate his house at a cost of R25 000. He approached his bank for a personal loan. He was provided with a personal loan repayment plan as shown in the table below.

Loan amount	Monthly payment for different periods with interest rate of 9,75% per annum					
	6 months	12 months	24 months	36 months	48 months	60 months
R10 000	R2 017,83	R1 067,07	R592,24	R434,47	R355,95	R309,13
R20 000	R3 746,15	R1 952,20	R1 056,28	R758,58	R610,43	R522,09
R30 000	R5 474,46	R2 837,33	R1 520,32	R1 062,69	R864,90	R735,05

NOTE:

- Initial administration at R1 207,50
- Monthly administration at R69

2.1.   Determine how much of his own funds Mr Tau will have to use to renovate the house, if he takes a personal loan of R10 000,00.

2.2.   Mr Tau eventually decides to take a personal loan of R10 000 repayable over 4 years.

   Determine:

2.2.1. The initial administration fee as a percentage of the loan amount
2.2.2. The total monthly amount that he will have to pay for this loan
2.2.3. The total interest that he will pay for his loan

2.3.   Mr Tau paid his first instalment at the end of March 2020. The monthly instalments are payable at the end of each month. Determine the month and year when Mr Tau will pay his last payment.

2.4.   Mr Tau received a contribution of 250 Canadian Dollars (CAD) from his son who works in Canada.

   Calculate the value of the contribution in Rand if the exchange rate at the time, was 1 CAD = R11,0555.

2.5.   The table below shows South Africa's inflation rates from June 2017 to June 2019.
   SOUTH AFRICA'S INFLATION RATES

YEAR	INFLATION RATE
2017	5,27%
2018	4,62%
2019	4,38%

2.5.1.   Explain the meaning of the term 'inflation'.

2.5.2.   Calculate the price of brown bread in June 2019 if the price was R12,24 in June 2017.

QUESTION 3 [Adapted: KZN 2021 PRELIM]

The Khumalo family is relocating from Durban to Richards Bay. Mr. Khumalo saw an advert for a house on sale in Aquadene on the internet.

R 780 000

3 Bedroom House

Aquadene

EXCLUSIVE MANDATE Well priced, perfect address, and spacious is this lovely property. This home consists of three bedrooms, two ...

🛏 3   🛁 2   🚗 1   ⬜ 287 m²

Banks use factor tables to calculate what the monthly repayment will be on the house loan. The table given below is an extract of the loan factor table.

LOAN FACTOR TABLE FOR MORTAGE BONDS

Annual Interest Rate	Years financed			
	10 Years	20 Years	25 Years	30 Years
7,0%	11,61	7,75	7,07	6,65
7,5%	11,87	8,06	7,39	6,99
8,0%	12,13	8,36	7,72	7,34
8,5%	12,40	8,68	8,05	7,69
9,0%	12,67	9,00	8,39	8,05
9,5%	12,94	9,32	8,74	8,41
10,0%	13,22	9,65	9,09	8,78

Use the information above to answer the questions that follow.

3.1.   Mr. Khumalo's bank is willing to give him a loan of 110% of the value of the property at 9,5% interest over a period of 25 years. Use the table above to calculate the monthly repayment of the loan.

You may use the formula:

Monthly Repayment = (loan amount ÷1000) × factor

3.2.   Calculate the real cost of the loan.

You may use the formula:

Real Cost of Loan=Monthly repayment×Loan period in months.

3.3.   Calculate the total interest on the loan.

MODULE 2: DATA HANDLING

UNIT 1: DEVELOPING QUESTIONS; COLLECTING DATA AND CLASSIFYING DATA

**Activity 2.1.1
Individual Work (15 marks)**

Instructions

- Individual activity
- Duration: 15 minutes
- Refer to the questions provided
- Task 1: Answer all the questions
   Task 2: Allocate marks for each question
   Task 3: Identify the taxonomy levels for each question.
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion

Resources: Training manual, Note pad, Pen and Calculator

The following drinks were bought at a school's tuck shop:

Water (W)   Juice (J)   Cold Drink (C)

Girls:

W	J	J	W	W
C	J	C	C	W

Boys

C	J	C	W	J
C	J	W	C	J

a) Use the above data to complete the frequency table below.

	Girls		Boys	
	Tally	Frequency	Tally	Frequency
W	////	4	//	2
J	///	3	////	4
C	///	3	///	3
TOTAL		10		9

b) Name the method or instrument you would use to collect the above data.
   Survey and Questionnaire
c) Indicate whether the data set is numerical or categorical.
   Numerical
d) Determine how many learners were surveyed.
   19
e) Identify which drink is the most popular drink for the girls.
   Juice

Activity 2.2.1
(Adapted from 2021 NW Prelim Paper 1)

Instructions

- You should form groups of 4 – 5
- Duration: 15 minutes
- Refer to the questions provided

22

- Task 1: Answer all the questions
    - Task 2: Allocate marks for each question
    - Task 3: Identify the taxonomy levels for each question.
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion

Resources: Training manual, Note pad, Pen and Calculator

The Box and whisker plot below shows the Grade 12 learners, who wrote a test in term 1 2020 before the pandemic and term 3 2020 during the pandemic. Study the graphs below and answer the following questions.

The total mark for each test was 30 marks.

TERM 1

TERM 3

| 1   3   5   7   9   11   13   15   17   19   21   23   25   27   29 |
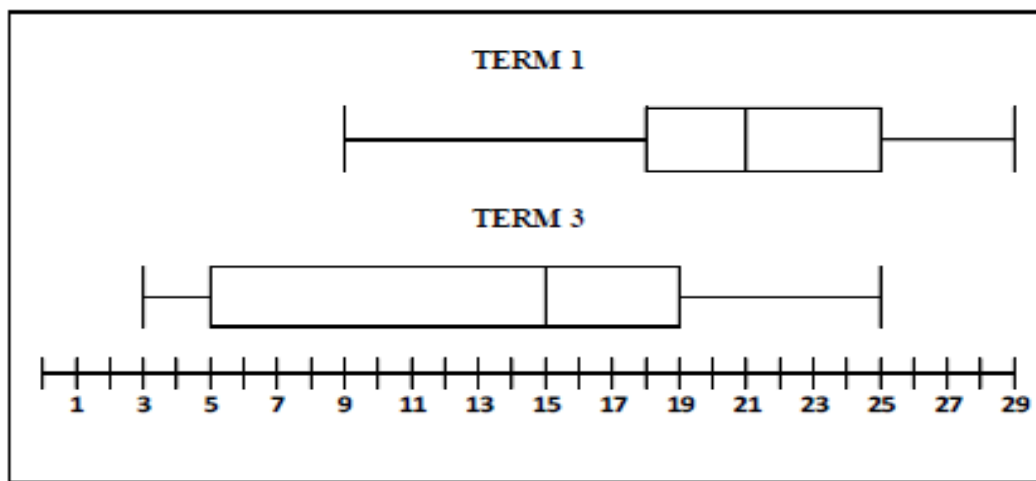
a) Explain the term *outlier* and state the biggest outlier of the two sets of data.

A value that lies outside most of the other values in a specific set of data

b) Determine which test had the largest interquartile range between the test in term 1 and the test in term 3. Show all calculations.

IQR Term 1 = Q3 – Q1
= 25 – 18
= 7
IQR Term 3 = 19 – 5
= 14
Term 3 had the largest IQR

c) Explain the impact the pandemic had on the results of the two sets of data and use the measure of central tendency to justify your answer.

The learners performed much better in term 1 than in term 3

**Activity 2.2.2**
(Adapted from NSC Nov P1 2021

Instructions

- You should form groups of 4 – 5
- Duration: 15 minutes
- Refer to the questions provided
- Task 1: Answer all the questions

   Task 2: Allocate marks for each question

   Task 3: Identify the taxonomy levels for each question.
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion

Resources: Training manual, Note pad, Pen and Calculator

BOX-AND-WHTSKER PLOTS SHOWING THE THREE LAPTOP BRANDS

MARKET SHARES IN PERCENTAGES
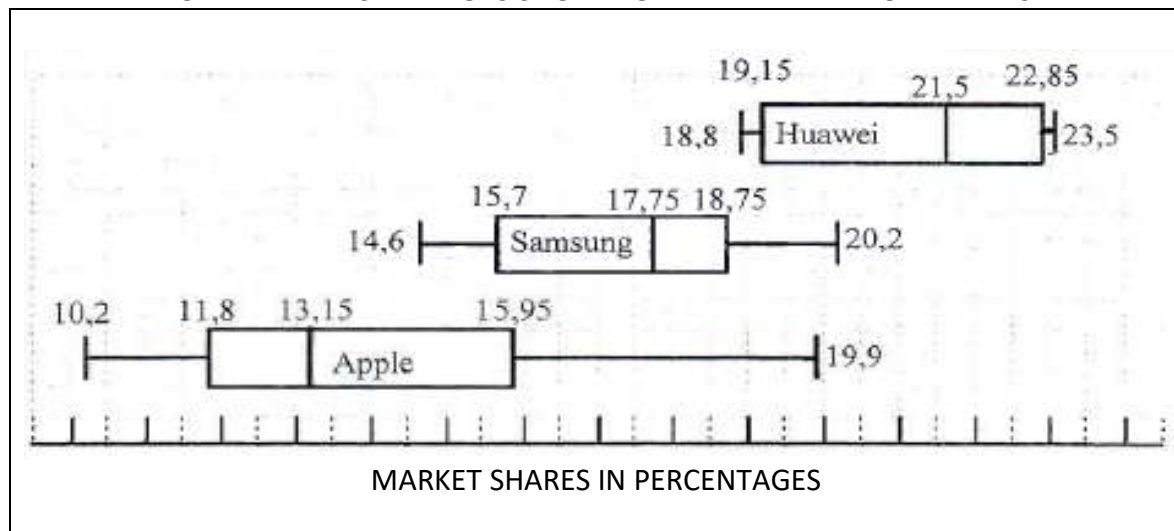
Use the box and whisker plots above to answer the questions that follow.

a) Write down the name of the most popular laptop brand.

   Huawei

b) Identify the 50th percentile of each laptop brand.

   21,5%

c) Write down the five-number summary of the Samsung brand.

   Min = 14,6 Q_1 = 15,7 Q_2 = 17,75 Q_3 = 18,75   Max = 20,2

d) Calculate the interquartile range (IQR) of the Apple brand.

   IQR = 15,95 – 11,8 = 4,15

e) A data analyst claims that 75% of the dataset of Apple was less than 16%

   Explain whether or not his statement is valid

   Quartile 3 is at 15,95which includes 75% of the dataset.

|	Activity 2.3.1
	(Adapted from NSC Nov P1 2021)

Instructions

- You should form groups of 4 – 5

- Duration: 15 minutes

- Refer to the questions provided

- Task 1: Answer all the questions

  Task 2: Allocate marks for each question

  Task 3: Identify the taxonomy levels for each questions

- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught

- Report Back and Discussion

Resources: Training manual, Note pad, Pen and Calculator

1. The graph below indicates the energy sources used for cooking in different provinces.

    DIFFERENT ENERGY SOURCES USED FOR COOKING
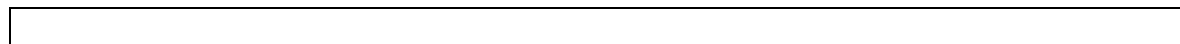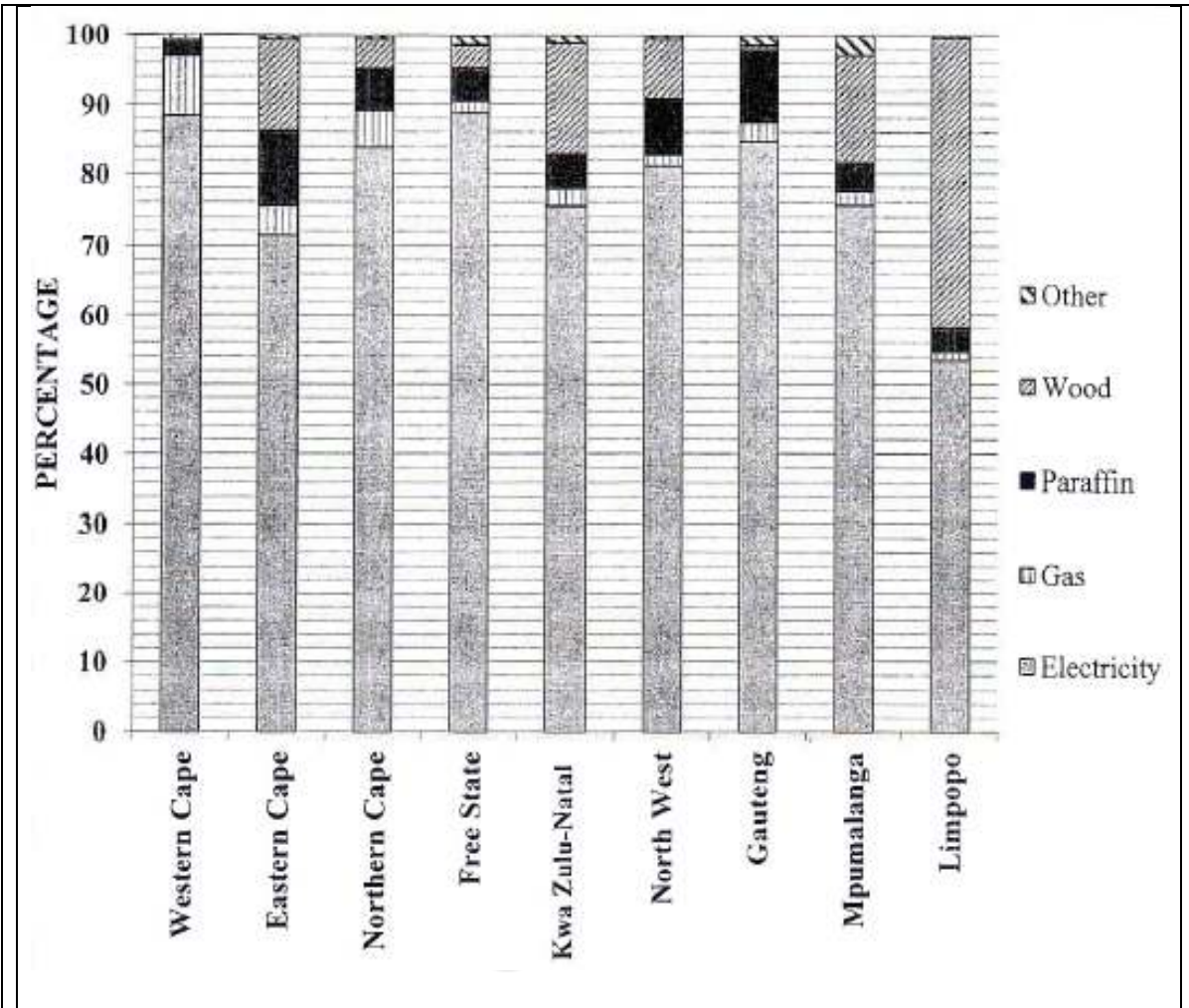
PROVINCES

Use the graph above to answer the questions that follow.

   a) Identify the source of energy that is mostly used for cooking.

     Electricity

   b) Name the province that uses the most paraffin for cooking.

     Limpopo

   c) Name another form of energy that could be used for cooking which could, fall under the 'Other' category

     Solar power/Coal/Charcoal/Wind turbines/Hydropower/Generator/Gel/Paper/Leaves/Animal manure/ Spirits/Corn stalk
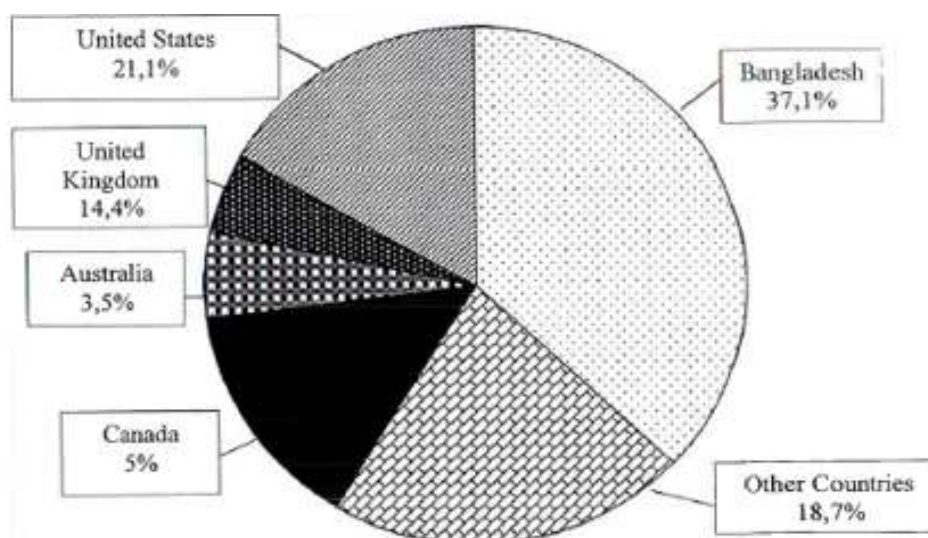
---

2. Tourism in India is important for country's economy and it is growing rapidly.
The graphs below indicate the number of tourist arrivals in India and the countries of origin of these tourist arrivals.

NUMBER OF TOURIST ARRIVALS IN INDIA FROM 2015 TO 2019 (IN MILLIONS)
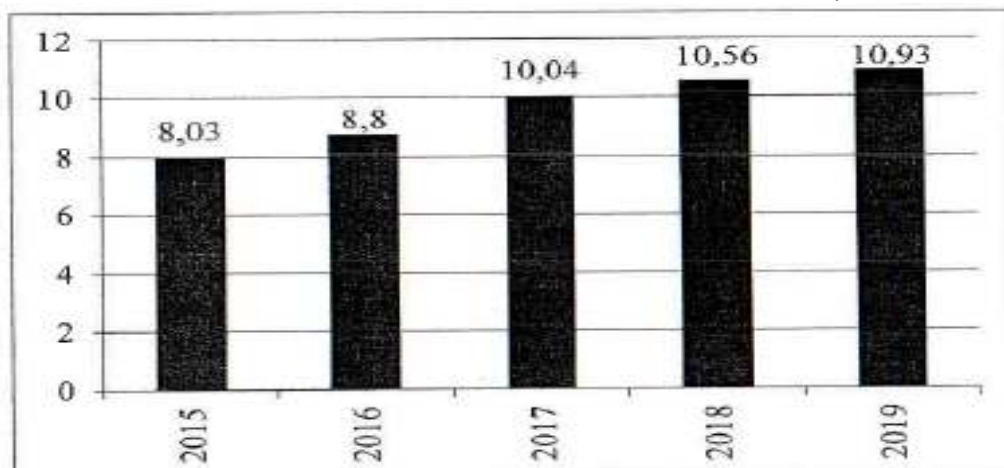
MOST IMPORTANT COUNTRIES FROM WHERE THE TOURISTS COME

Use the graphs above to answer the questions that follow:

a) State the trend in the number of tourist arrivals in India from 2015 to 2019.
   As the time increase the number of tourists visiting India increases

b) For 2019 the total number of tourist arrivals in India was 10,93 million.
   Tourist states that more than 4 500 000 tourists who visited India in 2019 came from Bangladesh.
   Verify, showing ALL calculations, whether his or her statement is correct.
   Number of tourists from Bangladesh
   10,93 million × $\frac{37,1}{100}$ = 4,05503 million = 4055030
   His statement is not correct

c) The pie chart shows the total percentage of tourist arrivals in India for 2019 as 99,8%.

Give a valid reason why this value is not 100%.

Due to the rounding of large numbers in converting to a percentage.

Activity 2.3.2
(Adapted from KZN Prelim P1 2021)

Instructions

- You should form groups of 4 – 5
- Duration: 15 minutes
- Refer to the questions provided
- Task 1: Answer all the questions

    Task 2: Allocate marks for each question

    Task 3: Identify the taxonomy levels for each question
- These questions are intended to prompt you to consolidate the unit and possible ways in which this section can be taught
- Report Back and Discussion

Resources: Training manual, Note pad, Pen and Calculator

1. The data shown in the TABLE below shows the data that was collected to investigate whether the pandemic (Covid 19) had an impact on the 2020 matric results of government schools. 2019 and 2020 columns show provincial pass rates.

Province	Number of:		Provincial Pass rate		Difference	Impact
	Infections	Deaths	2019	2020		
Free State	79 049	3 039	88,4	85,1	-3,2	Significant
Gauteng	400 636	9 392	87,2	83,8	-3,5	Significant
North West	59 948	1 057	86,8	76,2	-10,6	Enormous
Western Cape	273 433	10 984	82,2	79,9	-2,4	Slight
KwaZulu Natal	326 031	9 400	81,3	77,6	-3,7	Significant
Mpumalanga	69 613	1 213	80,3	73,7	-6,6	Great
Northern Cape	33 337	650	76,5	66,0	-10,5	Enormous
Eastern Cape	193 549	11 189	76,5	68,1	-8,3	Great
Limpopo	61 170	1 784	73,0	68,2	-5,0	Significant

Source: [www.dailymaverick.co.za]

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

a) What type of statistical graph can be used to compare the pass rates for 2019 and 2020?

Compound bar graph

b) Name TWO provinces that had the greatest drop in the pass rate from 2019 to 2020.

North West and North Cape

c) Calculate the mean pass rate for 2020 data

$$\frac{678,6}{9} = 75,4$$

d) Write down the modal pass rate for the 2019 data.

76,5%

e) Is there any relationship between the number of deaths and the provincial pass rates for 2020?

There is no relationship

2. Organised crime in workplaces is a common phenomenon in South Africa. The perpetrators are mostly managers at different levels. The graph below shows main perpetrators of internal fraud in workplaces.
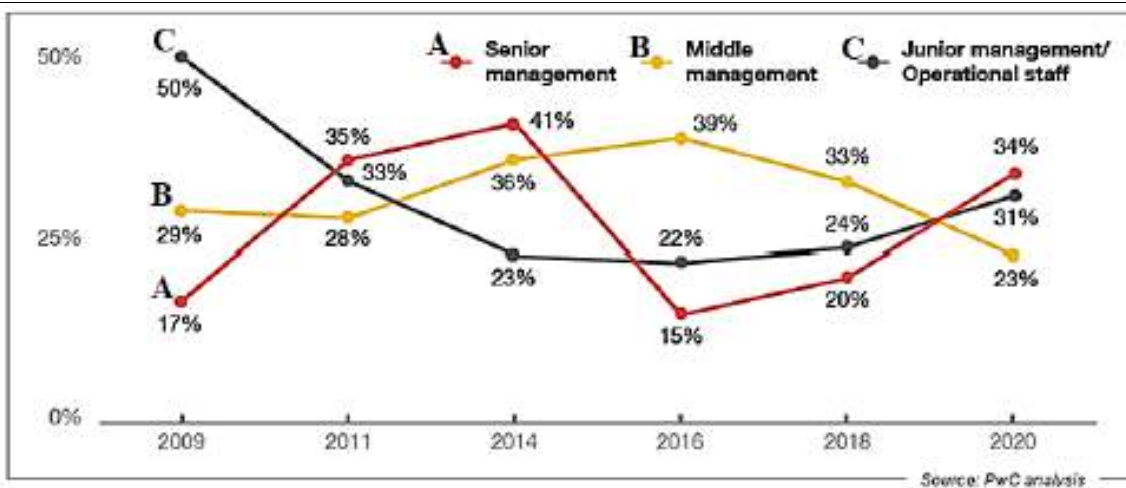
a) What type of graph is used to display this data?
   Broken Line Graph
b) Which year witnessed the same percentage level of internal fraud by managers in South Africa and what was the approximate level for that particular year?
   2019, 25%
c) Describe the trend shown by the graph from 2016 to 2020.
   Fraud in the middle management decreased from 2016 to 2020