



JENN

Training and Consultancy
The path to enlightened education

SUBJECT: MATHEMATICAL LITERACY

GRADE 12

2025 SPRING CLASSES AND LAST PUSH

SOLUTIONS MANUAL

TOPICS

PAPER 1

FINANCE AND DATA HANDLING

PAPER 2

**MEASUREMENT, MAPS, PLANS AND OTHER
REPRESENTATIONS OF THE PHYSICAL WORLD**

ACTIVITY 1: Measurement



1.1.1	31×2 $= 62 \text{ m}$
1.1.2	$50 + 31$ $= 81 \text{ m}$
1.1.3	Circumference $= 2 \times 3,142 \times 31$ $= 194,80 \text{ m}$
1.1.4	Area $= 3,142 \times 31^2$ $= 3019,46 \text{ m}^2$
1.1.5	Number households $= \frac{1750}{25}$ $= 70 \text{ households}$
1.2.1	2 000 kW
1.2.2	To allow rotor blade to produce more energy/Advanced technology to have material that can allow a big structure to stand firm on the ground/Larger rotor diameters allow wind turbines to sweep more area, capture more wind and produce more electricity
1.2.3	Max. height (in m) = Poles height + radius of rotor $= 114 + (124 \div 2)$ $= 114 + 62$ $= 176$ OR Pole + rotor $= 124 + 114$ $= 238$ Maximum height in m $= 238 - (124 \div 2)$ $= 238 - 62$ $= 176$
1.2.4	Radius $= 124 \div 2$ $= 62$ Area $= 3,142 \times (62)^2$ $= 12\,077,848 \text{ m}^2$ Not Valid
1.2.5	% increase $= \frac{5\,000 - 800}{800} \times 100\%$ $= 525\%$
1.2.6	Generators OR solar power OR hydro-power OR nuclear power

ACTIVITY 2: Measurement



1.1.1	Volume = $2,5 \times 2 \times 1,5$ $= 7,5 \text{ m}^3$
1.1.2	Surface area = $(2,5 \times 2) + 2 \times (2,5 \times 1,5) + 2 \times (1,5 \times 2)$ $= 5 + 7,5 + 6$ $= 18,5 \text{ m}^2$
1.1.3	Cost = $\text{R}480 \times 20$ $= \text{R}9\,600$
1.1.4	$\text{R}3\,999 \times 15\%$ $= \text{R}599,85$ Amount paid = $\text{R}3\,999 - \text{R}599,85$ $= \text{R}3\,399,15$
1.1.5	$2\,300 \ell = 1 \text{ hour}$ $6\,900 \ell = x \text{ hours}$ Time taken = $\frac{6\,900}{2\,300}$ $= 3 \text{ hours}$
1.2.1	$11,6 : 7,6$ $29 : 19$
1.2.2	Monday to Friday $= 17:00 - 07:30$ $= 9 \text{ hours } 30 \text{ min}$ Total for week $= 9 \text{ hours } 30 \text{ min} \times 5$ $= 47,5 \text{ hours}$ Saturdays $= 13:00 - 08:00$ $= 5 \text{ hours } 0 \text{ min}$ Total time $= 47,5 \text{ hours} + 5 \text{ hours}$ $= 52,5 \text{ hours}$
1.2.3	Volume $= 11,6 \text{ cm} \times 7,6 \text{ cm} \times 10,5 \text{ cm}$ $= 925,68 \text{ cm}^3$ Capacity $1 \text{ cm}^3 = 1 \text{ ml}$ $925,68 \text{ cm}^3 = 928,68 \text{ ml} \therefore$ Water volume = $928,68 \times 75\%$ $= 694,26 \text{ ml}$ Leftover $= 1\,000 \text{ ml} - 694,26 \text{ ml}$ $= 305,74 \text{ ml}$

ACTIVITY 3: Measurement



1.1.1	C
1.1.2	Mm^3
1.1.3	0,124
1.2.1	The circular pool is not as deep as the rectangular one
1.2.2	The capacity of a swimming pool is the maximum number of people that can safely use the pool without being overcrowded
1.2.3	<p>Volume of a cylinder = $3,142 \times (\text{radius})^2 \times \text{depth}$ $= 3,142 \times (7 \div 2)^2 \times 1$ $= 3,142 \times (3,5)^2 \times 1$ $= 38,4895$</p> <p>Volume of a rectangular prism = $\text{length} \times \text{width} \times \text{depth}$ $= 6,2 \times 3,25 \times 1,65$ $= 33,2475$</p> <p>Difference = $38,4895 - 33,2475$ $= 5,242$</p>
1.2.4 (a)	In case there is a breakage
1.2.4 (b)	<p>Surface area of an open cylinder = $3,142 \times \text{radius} \times (\text{radius} + 2 \times \text{depth})$ $= 3,142 \times 3,5 \times (3,5 + 2 \times 1)$ $= 60,4835 \text{ m}^2$</p> <p>20 cm = 0,2 m Area of 1 tile = $0,2 \times 0,2$ $= 0,04 \text{ m}^2$</p> <p>Number of tiles needed = $60,4835 \div 0,04$ $= 1512,09$ $= 1513$</p> <p>Tile bought = 100 boxes x 16 $= 1\,600$ tiles</p> <p>Plus 10% = $1\,600 + 160$ $= 1\,760$ tiles</p> <p>His statement is invalid</p>

ACTIVITY 4: Measurement



1.1.1	mm^2
1.1.2	Surface Area = $2 \times \pi \times \text{radius}^2 + 2 \times \pi \times \text{radius} \times \text{height}$
1.1.3	$200 \text{ mL} = 0,2 \text{ L}$
1.2.1	Rectangle
1.2.2	Volume = length \times width \times height $= 19,4 \times 7,9 \times 7,4$ $= 1134,12 \text{ ft}^3$
1.2.3	$1 \text{ m} = 3,28084 \text{ foot}$ $A = 20,0 \text{ foot}$ $A = 20 \div 3,28084$ $= 6,10$ Surface area of rectangular prism $= 2 \times (\text{length} \times \text{width}) + 2 \times (\text{width} \times \text{height}) + 2 \times (\text{length} \times \text{height})$ $= 2 \times (6,10 \times 2,40) + 2 \times (2,40 \times 2,60) + 2 \times (6,10 \times 2,60)$ $= 73,48 \text{ m}^2$
1.3.1	Number of tins = $53,2287 \div 8$ $= 6,653 \dots$ No of tins = $6,653 \dots \div 5$ $= 1,33 \dots$ He must buy = 2×5 litres of paint
1.3.2	Total cost = $2 \times \text{R}599$ $= \text{R}1\,198,00$

ACTIVITY 5: Measurement



1.1.1	$163 \text{ g} = 0,163 \text{ kg}$
1.1.2	$2 \times (\text{length} + \text{width})$
1.1.3	$11:51 + 2 \text{ hours}$ $= 13:51$ Nine minutes before two o'clock
1.1.4	Difference = $69,1 \text{ mm} - 7,9 \text{ mm}$ $= 61,2 \text{ mm}$
1.1.5	Number of options = 3×4 $= 12$
1.2.1	Goal Shooter Goal Attack Wing Attack
1.2.2	$D = 900 \text{ mm}$ $= 0,9 \text{ m} \div 2$ $= 0,45 \text{ m}$ Difference = $4,9 \text{ m} - 0,45 \text{ m}$ $= 4,45 \text{ m}$
1.2.3	Area of rectangle = $(10,17 \text{ m} \times 3) \times 15,25 \text{ m}$ $= 30,51 \text{ m} \times 15,25 \text{ m}$ $= 465,2775 \text{ m}^2$

ACTIVITY 1: BODY MASS INDEX (BMI)



1.1	Body Mass Index
1.2	$\text{BMI} = \frac{\text{Weight (in kg)}}{[\text{height (in m)}]^2}$ $\frac{72\,000}{1000} = 72\text{ kg}$ $\text{BMI} = \frac{72\text{ kg}}{1,79\text{m}}$ $\text{BMI} = 22,47\text{kg/m}^2$
1.3	Normal
1.4	To minimize the risk of getting sick

ACTIVITY 2: BODY MASS INDEX (BMI)



1.1.1	Body Mass Index
1.1.2	<p>Convert: $175 \div 100 = 1,75\text{ m}$</p> $\text{BMI} = \frac{\text{mass in kilograms}}{(\text{height in metres})^2}$ $25,1 = \frac{\text{Mass in kg}}{1,75\text{m} \times 1,75\text{ m}}$ $\text{Mass} = \text{BMI} \times (\text{height})^2$ $= 25,1 \times (1,75)^2$ $\text{Mass in (kg)} = 76,86875\text{ kg}$ $= 76,87\text{ kg}$
1.1.3	Overweight
1.1.4	Exercise
1.2.1	BMI
1.2.2	<p>Convert: $170 \div 100 = 1,05\text{ m}$</p> $\text{BMI} = \frac{\text{mass in kilograms}}{(\text{height in metres})^2}$ $28,1 = \frac{\text{Mass in kg}}{1,70\text{m} \times 1,70\text{ m}}$ $\text{Mass} = \text{BMI} \times (\text{height})^2$ $= 28,1 \times (1,70)^2$ $\text{Mass in (kg)} = 81,209\text{ kg}$ $= 81,21\text{ kg}$
1.2.3	Overweight
1.2.4	Eat healthy food Exercise

ACTIVITY 3: BODY MASS INDEX (BMI)



1.1.1	$60 \div 0,3937$ $= 152,4003048 \text{ cm} \div 100$ $= 1,52 \text{ m}$ OR/OF $60 \div 0,3937 \div 100$ $= 1,52 \text{ m}$
1.1.2	Nick's BMI = $56 \text{ kg} \div (1,65 \text{ m})^2$ $= 20,57 \text{ kg/m}^2$ Nicolene's BMI = $45 \text{ kg} \div (1,52 \text{ m})^2$ $= 19,48 \text{ kg/m}^2$ Difference = $20,57 - 19,48$ $= 1,09 \text{ kg/m}^2$ Ruth's statement is NOT correct

ACTIVITY 1: Scale and Maps



1.1	A1
1.2	Bloem Street
1.3	Actual distance = $2,9 \times 16\,000$ $= 46\,400 \text{ cm}$ $= 0,464 \text{ km}$ His claim is valid
1.4	NE/North East
1.5	North Westerly direction
1.6	Average speed = $\frac{2,4 \text{ km}}{9,5 \div 60}$ $= 15,16 \text{ km/h}$

ACTIVITY 2: Scale and Maps



1.1	B2
1.2	Bontebok National Park Karoo National Park
1.3	North West
1.4	Average speed = $\frac{153 \text{ km}}{30 \div 60}$ = 306 km/h
1.5	Durban

ACTIVITY 3: Scale and Maps



1.1.1	B2												
1.1.2	North West												
1.1.3	Hamilton Street												
1.1.4	From the Hotel, turn left into Proes St. At the intersection of Proes and Beatrix St, turn right into Beatrix St. Continue on Beatrix St, which later becomes Voortrekkers St Travel until the intersection of Voortrekkers and Jacobs St. Turn right into Jacobs Street and right into Tenth Ave.												
1.2.1 (a)	4 cm												
1.2.1 (b)	<table border="1"> <tr> <td>2 cm represents 300 km</td> <td>2 cm represents 300 km</td> </tr> <tr> <td>4 cm = (300 + 300)</td> <td>2 cm = 30 000 000 cm</td> </tr> <tr> <td>= 600 km</td> <td>The scale is 1:15 000 000</td> </tr> <tr> <td></td> <td>Then 4 x 15 000 000</td> </tr> <tr> <td></td> <td>= 60 000 000</td> </tr> <tr> <td></td> <td>= 600 km</td> </tr> </table>	2 cm represents 300 km	2 cm represents 300 km	4 cm = (300 + 300)	2 cm = 30 000 000 cm	= 600 km	The scale is 1:15 000 000		Then 4 x 15 000 000		= 60 000 000		= 600 km
2 cm represents 300 km	2 cm represents 300 km												
4 cm = (300 + 300)	2 cm = 30 000 000 cm												
= 600 km	The scale is 1:15 000 000												
	Then 4 x 15 000 000												
	= 60 000 000												
	= 600 km												
1.2.2 (a)	<p>600 km = 110 km/h x time</p> <p>Time = 600 km ÷ 110 km/h</p> <p>= 5,4545.... Hours</p> <p>From 08:15 to 14:30 = 6 h 15 min</p> <p>= 6,25 hours</p> <p>They will be there before 14:30</p>												
1.2.2 (b)	<p>9 ℓ: 100 km = 45 ℓ : x</p> <p>$x = \frac{45 \ell \times 100 \text{ km}}{9\ell}$</p> <p>x = 500 km</p> <p>then 600 km – 500 km</p> <p>= 100 km</p>												
1.2.3	Rustenburg												

ACTIVITY 4: Scale and Maps



1.1	South East or SE
1.2	Distance = 6,8 km – (0,19 + 3,2 + 2,1) km = 1,31 km
1.3	Fort Street
1.4	12 min = 12 ÷ 60 = 0,2 hour Distance = Speed × time 6,8 km = speed × 12 min Speed = 6,8 km ÷ 0,2 hour = 34 km/h
1.5	Distance = Speed × time = 36,5 km/h × (11 ÷ 60) h = 6,69166667 km Difference = 6,8 km – 6,69 km = 0,1083333 km ≈ 108,3 m

ACTIVITY 5: Scale and Maps



1.1	View Terrace
1.2	Facing oncoming traffic/One way road
1.3	North West
1.4	21 mm = 110 yards $XY = \frac{50 \times 110}{21}$ = 261,904 yards ≈ 262 yards
1.5 (a)	Street parking is limited to 1 hour before 5 pm. Parkering is beperk tot 1 uur voor 5 nm.
1.5 (b)	From. Vanaf 12:00 - 15:25 = (3 – 1) + (25 ÷ 60) = 2,41666..... hours Rate per hour = £79,75 ÷ 2,416..... = £33

ACTIVITY 6: Scale and Maps



1.1.1	North East
1.1.2	$6 \div 8 = 0,75$
1.1.3	$18 \text{ mm} = 175 \text{ m}$ $0,018 : 175$ $1 : 9722,22$ $1 : 9722$
1.1.4	$14,25 = 52 \text{ km/h} \times \text{time}$ $\text{Time} = 14,25 \div 52$ $= 0,274 \dots \text{Hours} \times 60$ $= 17 \text{ minutes}$
1.2.1	N2, N3, N6 and N10
1.2.2	0%
1.2.3	Port Shepstone
1.2.4	$\text{Total kilometres} = 60 + 172 + 5$ $= 237 \text{ km}$ $6,4 \text{ litres per } 100 \text{ km}$ $\text{For } 237 \text{ kilometres} = \frac{6,5 \times 237}{100}$ $= 15,045$ $= 16 \text{ litres}$ INVALID

ACTIVITY 1: Scale and Plans



1.1	Seven (7)
1.2	$70 \text{ mm} : 7\,000 \text{ mm}$ $= 1 : 100$
1.3	The house has only one door
1.4	$10\,714 \text{ mm} - 1\,200 \text{ mm} = 9\,514 \text{ mm}$ OR $\text{Perimeter} = 7\,000 + 9\,514 + 7\,000 + 9\,514 = 33\,028 \text{ mm}$
1.5	$7 : 4$ $1 : 1,75$
1.6	$72\% \times 39,54 \text{ m}^2$ $\approx 28,47 \text{ m}^2$ $\therefore \text{area of the kitchen} = 39,54 \text{ m}^2 - 28,47 \text{ m}^2$ $= 11,07 \text{ m}^2$

ACTIVITY 2: Scale and Plans



1.1	Nine (9)
1.2	Hippo
1.3	3 : 6 1 : 2
1.4	Measured distance = 72 mm Measure bar scale = 17mm 17mm = 200m 72mm = ? $= \frac{72 \times 200}{17}$ 847,0588235m $\div 1000 = 0,847 \text{ km}$ Bar scale is not correct

ACTIVITY 3: Scale and Plans



1.1	Four (4)
1.2	Two (2)
1.3	8 : 10 4 : 5
1.4	The total length of all sides of the house
1.5	B (m ²)
1.6	100%

ACTIVITY 4: Scale and Plans



1.1	18
1.2	Plan of a building seen from above
1.3	36 : 18 2 : 1
1.4	$56 - 17 = 39$ $\frac{39}{56} \times 100 = 69\%$ His claim is not correct
1.5	2
1.6	5,4 cm : 4,8 cm 0,054 : 4,8 1 : 88,89 1 : 89

1.7.1	Tree Diagram
1.7.2	2.2.2.a = CSM 2.2.2.b = F
1.7.3	Four
1.7.4	$6 \div 12 = 0,5$ $0,5 \times 100$ $= 50\%$

ACTIVITY 5: Scale and Plans



1.1	A layout plan is a top view that shows the arrangement of features / structures / location or position of items.
1.2	20
1.3	C The screen is opposite the door leading into the room
1.4	North table is narrow or small or limited space.
1.5 (a)	12,7 cm or 127 mm
1.5 (b)	12,7 cm : 12 m 12,7 : 1 200 1 : 94,49

ACTIVITY 1: Elevation Plans



1.1.1	Finished OR Completed
1.1.2	South (Front) Elevation OR Opposite of North elevation.
1.1.3	Extra room on the North (rear =) elevation. New window all together on new room erected. OR New small window on the North elevation wall of the room above living room/sliding door. OR Possible TWO small windows from original room now re-used on the obscure sides.
1.1.4	16 (i.e. if question paper is showing glass window on the kitchen entry) OR 15 (i.e. if question paper is not showing glass window on the kitchen entry). OR 14 if sliding door panes/glass are not calculated. OR 13 if sliding door panes/glass are not calculated
1.2.1	Numerical / ratio scale
1.2.2	11 ordinary door

1.2.3	East Elevation
1.2.4	Measured length = 31mm Actual length = 31×200 = 6 200 mm = 6, 2 m

ACTIVITY 2: Elevation Plans



1.1.1	One door is for the closet in the bedroom./Een deur is vir die kas van die slaapkamer The other door is for the closet in the corridor./Die ander deur is vir die kas in die gang South Elevation
1.1.2 (a)	South Elevation
1.1.2 (b)	North Elevation
1.2.1	It is a plan with a view of a building seen from one side/ It is a two-dimensional representation of one side of a building.
1.2.2	3 cm
1.2.3	Area OR Surface area
1.2.4	0 or None

ACTIVITY 1: Assembly Diagrams



1.1.1	$32 - (8 + 6 + 8 + 8)$ = 2 bolts
1.1.2	2 nuts
1.1.3	Short brace
1.2.1	Total no of washers = $9 + 8$ = 17
1.2.2	To study
1.2.3	G
1.2.4	10
1.2.5	$4 \times 15 = 60$ desks
1.3.1	Total = $(3 \times 4) + 18 + 18 \checkmark$ MA = 48
1.3.2	Part D
1.3.3	Step 5
1.3.4	Step 1 Attach part B to A Step 2 Attach part D to A Step 3 Place part C onto B and D

	OR Step 1 Attach part B to C Step 2 Attach part D to C Step 3 Place part A onto B and D
1.4.1	5
1.4.2	Tripod
1.4.3	Clockwise
1.4.4 (a)	H
1.4.4 (b)	G

ACTIVITY 2: Assembly Diagrams



1.1.1	18
1.1.2	6×3 $= 18$
1.1.3	Chair support
1.1.4	1,9 cm
1.1.5	$1,27 \times 10 \text{ mm}$ $= 12,7 \text{ mm}$
1.2.1	3
1.2.2	F
1.2.3	Allen key
1.2.4	Chair arms F
1.3.1	D
1.3.2	A
1.3.3	F
1.3.4	B
1.3.5	C
1.3.6	E

ACTIVITIES: MODELS



1.1.1	<p>Bottle diameter = $52 \times 2 \div 1000$</p> <p>Length = width = 0,104 m</p> <p>Bottle height = $327 \div 1000$</p> <p>= 0,327 m</p> <p>Pallet length = $8 \times 0,104$</p> <p>= 0,832</p> <p>Pallet width = $8 \times 0,104$</p> <p>= 0,832</p> <p>Pallet height = 0,327</p> <p>Lengthwise = $8,1 \div 0,832$</p> <p>= 9</p> <p>Width wise = $2,45 \div 0,832$</p> <p>= 2</p> <p>Height wise = $2,6 \div 0,327$</p> <p>= 7</p> <p>Total number of pallets = $9 \times 2 \times 7$</p> <p>= 126</p>
1.1.2	<p>$1,5 \text{ ton} \times 1000 = 1\,500 \text{ kg}$</p> <p>$64 \times 2 = 128 \text{ litre} = 128 \text{ kg}$</p> <p>Number of pallets = $1\,500 \text{ kg} \div 126 \text{ kg}$</p> <p>= 11 pallets</p> <p>His statement is INCORRECT.</p>
1.2.1	<p>Length in cm = $98,43 \times 2,54$</p> <p>= 250,01cm</p> <p>Length in m = $250,01 \div 100$</p> <p>= 2,50m</p>
1.2.2	<p>Along the length = $15 \div 2,50$</p> <p>= 6</p> <p>Along the width = $7,5 \div 2,50$</p> <p>= 3</p> <p>Number of tables = 6×3</p> <p>= 18 tables</p>
1.3.1	<p>Height of the box = 31,8 cm = 0,318m</p> <p>Number of layers = $\frac{2,4m}{0,318m}$</p> <p>= 7,547...</p> <p>= 7 layers</p>

	His Statement is VALID
1.3.2	<p>Length of the box and width of the room</p> <p>Length of the box = $28 \text{ cm} \div 100$ $= 0,28 \text{ m}$</p> <p>Width of the room = $2,6 \text{ m} - 20\%$ $= 2,08 \text{ m}$</p> <p>$\frac{2,08\text{m}}{0,28\text{m}} = 7,43$ $= 7 \text{ boxes}$</p> <p>Width of the box and length of the room</p> <p>Width of the box = $0,23 \text{ m}$ Length of the room = $2,4 \text{ m}$</p> <p>$\frac{2,4\text{m}}{0,23\text{m}} = 10,434\dots$ $= 10 \text{ boxes}$</p> <p>Total no of boxes to be packed = $7 \times 10 \times 7$ $= 490 \text{ boxes}$</p>

ACTIVITY 1: Exchange Rates



1.1.1	It is the price for which the currency of one country can be exchanged for another country's currency
1.1.2	<p>Rand is Weaker</p> <p>Dollar is Stronger</p>
1.1.3	<p>$R30\,000 \div R13,97$</p> <p>$= R2\,147,46$</p>
1.2.1	October 02, 2017
1.2.2	13,608770
1.2.3	Australian Dollar
1.2.4	11

ACTIVITY 2: Exchange Rates



1.1.1	The value of one currency relative to the value of another currency
1.1.2	Weaker
1.2.1	Chinese Yuan
1.2.2	$\begin{aligned} \text{Cost / Koste} &= 15\,000 \text{ INR} \times 1250 \text{ House} \\ &= 18\,750\,000 \text{ INR} \\ &= 18\,750\,000 \div 0,20 \\ &= \text{R } 93\,750\,000 \end{aligned}$ <p style="text-align: center;">OR</p> <p>For 1 geyser: 1 ZAR = 0,20 INR</p> $\frac{15\,000}{0,2 \checkmark \text{ M}} = \text{R}75\,000$ $\text{R}75\,000 \times 1\,250 = \text{R}93\,750\,000$
1.3.1	Yen
1.3.2	Two hundred and ninety-two million three hundred and eighteen thousand four hundred and sixty rand
1.3.3	To have a more accurate value, especially when it is a large amount of money
1.3.4	$\begin{aligned} 1\text{€} &= \text{R}20,87989 \\ ?\text{€} &= \text{R}292\,318\,460 \\ ?\text{€} &= \frac{\text{R}292\,318\,460}{\text{R}20,87989} \\ &= \text{€}14\,000\,000 \end{aligned}$
1.3.5	<p>Amount to be spent on ventilators</p> $\begin{aligned} &\text{R}292\,318\,460 \times \frac{4}{7} \\ &= \text{R}167\,039\,120 \end{aligned}$

ACTIVITY 1: Inflation



1.1.1	<p>A measure of the change in the purchasing power of money over a period of time.</p> <p style="text-align: center;">OR</p> <p>The increase in the price of goods and services from year to year.</p>
1.1.2	2008
1.1.3	$\begin{aligned} \text{Difference} &= \text{R}6,97 - \text{R}5,00 \\ &= \text{R}1,97 \end{aligned}$
1.1.4	$\begin{aligned} \text{Number of loaves} &= \frac{\text{R}270,00}{\text{R}5,40} \\ &= 50 \end{aligned}$
1.2.1	<p>b.</p> <p>OR</p> <p>It increases the purchasing power of currency</p>
1.2.2	Broken Line OR Line
1.2.3	March 2018 OR 03/2018 OR 3/ '18 OR 03/'18
1.2.4	October 2018 OR 10/2018 OR 10 / '18

1.2.5	3%
1.2.6	Inflation rate is still a positive value. OR It just declined degreased from high positive to low positive value.

ACTIVITY 2: Inflation



1.1	Inflation = C
1.2.1	Average Inflation rate because it involves an increase of different goods over a period of time.
1.2.2	Inflation rate decreased from 2016 to 2017 and prices of goods increased at a lower rate. Inflation rate increased from 2017 to 2019 and prices of goods increased at a higher rate.
1.2.3	<p>New price = old price \times (100% + Inflation rate%)</p> <p>R5356 = price in 2017 \times (100% + 5,94%)</p> <p>Price in 2017 = $\frac{5356}{1,0594}$</p> <p style="padding-left: 40px;">= R5 055,69</p> <p>Price in 2019 = 5356 \times (100% + 8,63%)</p> <p style="padding-left: 40px;">= R5 818,22</p> <p>Difference = R5 818,22 – R5 055,69</p> <p style="padding-left: 40px;">= R762,53</p>

ACTIVITY 1: Tariff Systems



1.1.1	$A = R91,43 - R79,50 = R11,93$ OR $A = \frac{15}{100} \times 79,50 = R11,93$
1.1.2	Step 5 = 5kl
1.1.3	Tariff (Inc. VAT) = R106,18 + R15,93 = R122, 11
1.2.1	8 kℓ
1.2.2	$9 \times R0,00 = R0$ $8 \times R28,97 = R321,76$ $12 \times R39,20 = R470,40$ $11 \times R45,13 = R496,43$ = R1 288,59 $R1\ 288,59 \times 1,15 = R1\ 481,88$

ACTIVITY 2: Tariff Systems



1.1.1	Tariff – Cost of electricity per unit/kWh
1.1.2	Number of units = 650 – 400 kWh = 250 kWh
1.1.3	Tariff including VAT = $270,33c \times 1,15$ = 310,8795c = R3,11
1.1.4	Amount excl. VAT = $R1\ 941,42 \div 1,15$ = R1 688,19 Block 1 = $R2,7033 \times 100 = R270,33$ Block 2 = $R3,1637 \times 300 = R949,11$ Amount spent in block 3 = $R1\ 688,19 - (R270,33 + R949,11)$ = R468,75 Number of units in block 3 = $R468,75 \div R3,4467$ = 135, 9996518 kWh Total number of kWh = $100 + 300 + 135,9996518$ = 535, 999... = 536 kWh
1.1.5	<ul style="list-style-type: none"> • Switch off his geyser when not in use. • Use a gas stove to cook.

- Invest in a solar system.
- Invest in energy efficient appliances.

ACTIVITY 3: Tariff Systems



1.1	Total cost = R450 + (number of minutes – 100) × R1,40																																				
1.2	D = R450 + (100 – 100) × R1,40																																				
(a)	= R450																																				
1.2	R1990 = R450 + (E – 100) × R1,40																																				
(b)	R1990 – R450 = (E – 100) × R1,40 $\frac{R1\ 540}{R1,40} = \frac{(E-100) \times R1,40}{R1,40}$ R1 100 = E – 100 R1 100 + 100 = E E = R1 200																																				
1.2	F = R2,25 × 200																																				
(c)	= R450																																				
1.3	<p>Cost for talking on a cellphone</p> <table><caption>Data points for Cost for talking on a cellphone</caption><thead><tr><th>Minutes (x)</th><th>Cost A (y)</th><th>Cost CA (y)</th></tr></thead><tbody><tr><td>0</td><td>450</td><td>0</td></tr><tr><td>50</td><td>450</td><td>112.5</td></tr><tr><td>100</td><td>450</td><td>225</td></tr><tr><td>150</td><td>525</td><td>337.5</td></tr><tr><td>200</td><td>600</td><td>450</td></tr><tr><td>250</td><td>675</td><td>562.5</td></tr><tr><td>300</td><td>750</td><td>675</td></tr><tr><td>350</td><td>825</td><td>787.5</td></tr><tr><td>400</td><td>900</td><td>900</td></tr><tr><td>450</td><td>975</td><td>1012.5</td></tr><tr><td>500</td><td>1050</td><td>1125</td></tr></tbody></table>	Minutes (x)	Cost A (y)	Cost CA (y)	0	450	0	50	450	112.5	100	450	225	150	525	337.5	200	600	450	250	675	562.5	300	750	675	350	825	787.5	400	900	900	450	975	1012.5	500	1050	1125
Minutes (x)	Cost A (y)	Cost CA (y)																																			
0	450	0																																			
50	450	112.5																																			
100	450	225																																			
150	525	337.5																																			
200	600	450																																			
250	675	562.5																																			
300	750	675																																			
350	825	787.5																																			
400	900	900																																			
450	975	1012.5																																			
500	1050	1125																																			

ACTIVITY 3: Tariff Systems

1.1.1	15 – 6 = 9 kℓ
1.1.2	Cost for 1st 6 kℓ = $6 \times 11,40 = R68,40$ Cost for 15 – 6kℓ = $9 \times 28,14 = R253,26$ Cost for kℓ above 15 = $12 \times 32,23 = R386,76$ Total excl. VAT = $R68,40 + R253,26 + R386,76$ = R708, 42 Total incl. VAT = $R708,42 \times 1,15$ = R814,68 Mr Sethole statement is valid.
1.1.3	% Increase = $\frac{\text{New amount} - \text{Old amount}}{\text{Old amount}} \times 100\%$ = $\frac{39,60 - 36,41}{36,41}$ = 9%

ACTIVITY 4: Tariff Systems

1.1.1	A tariff is the cost per unit. In this case it refers to the cost per trip.
1.1.2	Cost of Uber = R6,40 + R9, 50 per km
1.1.3	Cost of Myciti: $R88 \times 5 = R440$ Uber: $R6,40 + (R9,50 \times 20\text{km}) = R196,40$ $R196,40 \times 5 \text{ days} \times 2$ = R 1 9640 Difference: $R1964 - R440$ = R1 524 Therefore, his statement is correct
1.1.4	He has more control OR He does not have to wait OR He can be picked up and dropped off at his location instead of at a bus stop.

ACTIVITY 5: Tariff Systems

1.1.1	$1^{\text{st}} 50\text{kWh}: 50 \times R0,8375$ $= R41,875$ $\text{Next } 300\text{kWh}: 300 \times R0,9440$ $= R283,20$ $\text{Total cost} = R41,875 + R283,20$ $= R325,075$ $\approx R325,08$
1.1.2	$R325 \times 1,15 = R373,75$
1.2.1	$45 \times R0,7986 = R35,937$ $\approx R35,94$
1.2.2	$1^{\text{st}} 50\text{kWh}: 50 \times R0,7986 = R39,93$ $\text{Next } 190\text{kWh}: 190 \times R1,0755$ $= R204,345$ $\text{Total cost} = R39,93 + R204,345$ $= R244,275$ $\approx R244,28$
1.3	$600\text{kWh} \times 267,38\text{c} = 160\,428\text{c}$ $900\text{kWh} \times 288,24\text{c} = 259\,416\text{c}$ Increase: $259\,416\text{c} - 160\,428\text{c} = 98\,988\text{c}$ $\text{Increase in rands:}$ $98\,988\text{c} \div 100 = R\,989,88$

ACTIVITY 1: Personal Income Tax



1.1.1	Two million four hundred and seventy-five thousand five hundred and sixty-six.
1.1.2	B/Pension Fund
1.1.3	$\text{Pension contribution} = (7,5 \div 100) \times R2\,475\,566$ $= R185\,667,45$ $\text{Annual taxable income} = R2\,475\,566 - R185\,667,45$ $= R2\,289\,898,55$
1.1.4	$\text{MTC} = R728 + (246 \times 4)$ $= (728 + 984) \times 12$ $= R20\,544$
1.1.5	$\text{Tax payable} = 644\,489 + 45\% \text{ of taxable income above } 1\,817\,000$ $= 644\,489 + 0,45 (2\,289\,898,55 - 1\,817\,000)$ $= 644\,489 + 0,45(472\,898,55)$ $= 644\,489 + 212\,804,35$ $= 857\,293,35 - 17\,235 - 9\,444 - 20\,544$ $= 810\,070,35$ $\text{Her claim is not valid}$
1.1.6	$\text{They receive 3 rebates}$ OR $\text{Their total rebates is higher}$

ACTIVITY 2: Personal Income Tax



1.1.1	South African Revenue Service
1.1.2	Tax threshold = R17 235 + R9 444 = R26 679 R26 679 ÷ 0,18 = R148 216,6666 = R148 271
1.1.3	Annual Medical tax credit = (R364 × 2 × 12) + (R246 × 2 × 12) = R8 736 + R5 904 = R14 640
1.1.4	Annual income = R40 165 × 12 = R481 980 Annual pension = R481 980 × (7,5 ÷ 100) = R36 148,50 Annual taxable income = Annual income – Annual pension = R481 980 – R36 148,50 = R445 831,50 He is correct
1.1.5	Annual income tax = R77 362 + 31% of income above R370 500 = R77 362 + [0,31 × (R445 831,50 – R370 500)] = R77 362 + (0,31 × R75 331,50) = R77 362 + R23 352,77 = R100 714,77 = R100 714,77 – R17 235 – R9 444 = R74 035,77 – R14 640 = R59 395,77

ACTIVITY 3: Personal Income Tax



1.1.1	South African Revenue Service
1.1.2	Gross Annual income R45 000 × 12 = R540 000 Pension Fund: 7,5% × R540 000 = R40 500 Taxable Income: = Annual Gross Income – Pension Contribution = R540 000 – R40 500 = R499 500
1.1.3	Medical Tax Rebate = 728 + (246 × 2) = R1 220 = R1 220 × 12 = R14 640

1.1.4	$= 77\,362 + 31\% [(499\,500 - 370\,500)]$ $= 117\,352$ $= 117\,352 - 17\,235 - 14\,640$ $= R85\,477$
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ACTIVITY 4: Personal Income Tax



1.1	$\frac{227\,600}{12} \times 1,5$ $= R28\,450$
1.2	Taxable income: $227\,600 + 28\,450$ $= 256\,050$ Tax before rebate $= 42\,678 + 26\% \times (256\,050 - 237\,100)$ $= 42\,678 + 26\% \times 18\,950$ $= 42\,678 + 4\,927$ $= 47\,605$ Tax payable = $47\,605 - 17\,235 - (364 \times 12)$ $= R26\,002$

ACTIVITY 5: Personal Income Tax



1.1.1	SARS South African Revenue Service
1.1.2	$R\,369\,600 + (R\,369\,600 \div 12)$ $= R400\,400$
1.1.3	<u>Rebate:</u> $R\,17\,235 + R\,9\,444$ $= R\,26\,679$ Income Tax $R\,77\,362 + [31\% \times (R\,400\,400 - R\,370\,500)]$ $= R\,77\,362 + (31\% \times R\,29\,900)$ $= R\,77\,362 + R\,9\,269$ $= R\,86\,631$ $R\,86\,631 - R\,26\,679$ $= R\,59\,952$

ACTIVITY 6: Personal Income Tax



1.1.1	Income= $R32\,542,80 \times 12$ = $R390\,513,60$ Pension= $7,5\% \times R32\,542,80 \times 12$ = $R29\,288,52$
1.1.2	Medical Tax Credit = $R728 + R728 + (R246 \times 4)$ = $R2\,440 \times 12$ = $R29\,280$
1.1.3	Tax= $R42\,678 + 26\% (R361\,225,08 - R237\,100)$ = $R42\,678 + R32\,272,52$ = $R74\,950,52$ = $R74\,950 - R17\,235 - R29\,280$ = $R28\,435,52$ = $R28\,435,52 \div 12$ = $R2\,369,63$
1.1.4	Annual income= $R10\,321 \times 12$ = $R123\,852$ Her income is below the tax threshold of R148 217; thus his statement is valid.
1.1.5	Fixed= $R121\,475 + 36\% (673\,000 - 512\,800)$ = $R121\,475 + R57\,672$ = $R179\,147$

ACTIVITY 7: Personal Income Tax



1.1.1	Tax Free Amount = $\frac{1}{3} \times R3\,240\,000$ = $R1\,080\,000$
1.1.2	Tax = $R39\,600 + 27\% (R1\,155\,000 - R770\,000)$ = $R39\,600 + R103\,950$ = $R143\,550$
1.1.3	Taxable Amount = $R3\,240\,000 - R1\,080\,000$ = $R2\,160\,000$ Tax = $R143\,550 + 36\% (R2\,160\,000 - R1\,155\,000)$ = $R505\,350$
1.2.1	Annual medical credit = (364×2) = $R728$ $R728 \times 12$ $R8\,736$
1.2.2	Tax rebate $R17\,235 + R9\,444$ = $R26\,679$
1.2.3	Annual taxable income $R35\,750 \times 12$

	$= R429\,000$ $R77\,362 + 31\%(R429\,000 - R370\,500)$ $= R77\,362 + 31\%(R58\,500)$ $= R77\,362 + R18\,135$ $= R95\,497$ $= R95\,497 - R8\,736 - R26\,679$ Monthly tax payable $= R60\,082 \div 12$ $= R5\,006,83$ per month
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ACTIVITY 1: Data Handling



1.1.1	Compound / Multiple / Bar Graph
1.1.2	MR
1.1.3	$62\% - 40\%$ $= 22\%$
1.2.1	Circuit 2
1.2.2	70,5
1.2.3	Range = max - min $= 95 - 3$ $= 92$
1.2.4	$IQR = Q3 - Q1$ $43,25 = Q3 - 28,25$ $43,2 + 28,25 = Q3$ $71,5 = Q3$ The statement is correct

ACTIVITY 2: Data Handling



1.1.1	Observation
1.1.2	$16 = \frac{216 + 3R}{18}$ $16 \times 18 = 216 + 3R$ $288 - 216 = 3R$ $72 = 3R$ $R = 24$
1.1.3 (a)	11 12 12 14 15 15 16 18 18 19 19 20 20 20 20 20 20 Median = $\frac{18 + 19}{2}$ $= 18,5$
1.1.3 (b)	$Q1 = 15$ $IQR = Q3 - Q1$ $= 20 - 15$ $= 5$

1.1.4	Small groups of participants ensure a feeling of Togetherness/Participants are able do morning classes before they go to work/It's part of starting the day
1.1.5	The maximum value is the same as quartile 3/Attendance remained the same from the 75 th percentile
1.2.1	EC/Eastern Cape
1.2.2	Ascending
1.2.3	$\frac{400 - 437}{437} \times 100$ = 0,69%
1.2.4	100% - 4,08% = 95,92% A = (100 ÷ 95,92) x 4417 = 4604,87 = 4604 or 4605
1.2.5	Estimated (34 ÷ 100) x 60,14 = 20,4476 million Number in the table 20 495 ÷ 1 000 = 20,495 Difference = 20,495 mil – 20,4476 mil = 0,0474

ACTIVITY 3: Data Handling



1.1.1	Gauteng																														
1.1.2	$6\,497\,100+2\,899\,900+14\,273\,800 +11\,067\,500+5\,774\,600+4\,442\,500+ 1\,213\,500+3\,854\,400+6\,508\,700$ $= 56\,522\,000$																														
1.1.3	$\frac{4\,442\,500}{56\,522\,000} \times 100$ $= 7,9\%$																														
1.1.4	Western and Eastern Cape The difference is: $6\,508\,700 - 6\,497\,100$ $= 11\,600$ Because the numbers are so large, it will be possible to have the same percentage																														
1.1.5	Discrete Data																														
1.2.1	<table border="1"><tr><td>22</td><td>26</td><td>28</td><td>30</td><td>32</td><td>33</td><td>34</td><td>34</td><td>34</td><td>34</td></tr><tr><td>35</td><td>37</td><td>38</td><td>42</td><td>43</td><td>45</td><td>46</td><td>48</td><td>49</td><td>52</td></tr><tr><td>56</td><td>65</td><td>69</td><td>73</td><td>75</td><td>79</td><td>83</td><td>84</td><td>88</td><td>92</td></tr></table> $\text{Median} = (44 +45) \div 2$ $= 44$	22	26	28	30	32	33	34	34	34	34	35	37	38	42	43	45	46	48	49	52	56	65	69	73	75	79	83	84	88	92
22	26	28	30	32	33	34	34	34	34																						
35	37	38	42	43	45	46	48	49	52																						
56	65	69	73	75	79	83	84	88	92																						
1.2.2	$48,53 = \frac{24+46+\cdots+A}{30}$ $48,53 \times 30 = A + 1\,430$ $1\,455,9 - 1\,430 = A$ $A = 26$																														
1.2.3	$\text{Range} = 2,04 - 0,82$ $\text{Range} = 1,22\text{ m}$ $0,82 \times 2 = 1,64\text{ m}$ His statement is INCORRECT																														

ACTIVITY 4: Data Handling



3.1.1	Stacked bar graph
1.1.2	Male
1.1.3	$\text{Mean} = \frac{47,6\% + 41,8\% + 38,5\%}{3}$ $= 42,63\%$
1.1.4	$\text{Total} = 445\,330 + 319\,372$ $= 764\,702$ $\text{Percentage} = \frac{764\,702}{389\,400\,000} \times 100\%$ $\approx 0,20\%$
1.2.1	(A) F (B) SADC (C) F & SADC
1.2.2	$P(\text{Tourist from SADC}) = \frac{2}{6}$ $= \frac{1}{3}$
1.3.1	51 g
1.3.2	52 g
1.3.3	$\text{Range} = 60\text{ g} - 46\text{ g}$ $= 14\text{ g}$ $\text{IQR} = Q3 - Q1$ $= 57\text{ g} - 49\text{ g}$ $= 8\text{ g}$ $\text{Difference} = 14\text{ g} - 8\text{ g}$ $= 6$

ACTIVITY 2: Probability



1.1	16:00
1.2	Probability = 20%
3.1	$\frac{625}{1000}$ $= \frac{5}{8}$
3.2	$0,625 \times 100$ $= 62,5\%$
3.3	No There is still a 37,5% chance that it might not rain; it is not 100% certain.

ACTIVITY 3: Probability



1.1.1 (a)	X = Ribbon
1.1.1 (b)	Y = HBN
1.1.2 (a)	4 out of 8 = 0,5 = 50%
1.1.2 (b)	2 out of 8 = 0,25 = 25%
1.2.1	Instrumental music $P(\text{instrumental}) = \frac{12}{24}$ or 0,5 or 50%
1.2.2	$P(\text{hip-hop}) = 0\%$ OR 0 OR $\frac{0}{24}$
1.2.3	$P(\text{Jazz}) = \frac{6}{24}$ = 0,25

BIBLIOGRAPHY

1	FS Daily activities
2	2025 June Exam: FS, GP and WC
3	2024 June exam: FS, GP, WC and KZN
4	DBE November Exam: 2023 - 2024
5	DBE May/June: 2023 - 2025