



education

**MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA**

FURTHER EDUCATION AND TRAINING

GERT SIBANDE DISTRICT

GRADE 12

MATHEMATICS

**TERM 3 AUGUST 2026
MARKING GUIDELINES**

MARKS: 50

These marking guidelines consist of 6 pages, including the cover page

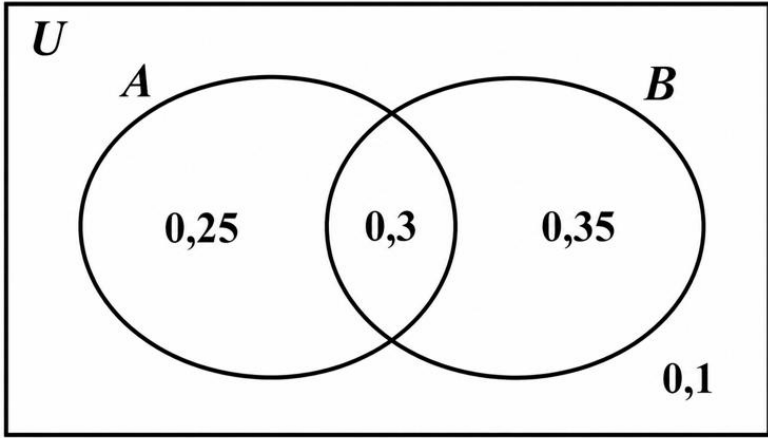
NOTE:

- If a candidate answered a question TWICE, mark only the FIRST attempt
- If a candidate crossed out an answer and did not redo it, mark the crossed-out answer.
- Consistent accuracy applies to ALL aspects of the marking guidelines.
- Assuming values/ answers, in order to solve a problem, is unacceptable.

QUESTION 1		
1.1	$r = 0,99$ Very strong positive correlation.	✓ r ✓ correlation description (2)
1.2	$a = 2675,84$ $b = 1677,79$ $y = 2675,84 + 1677,79x$	✓ a ✓ b ✓ equation (3)
1.3	$y = 2675,84 + 1677,79(19)$ $= 34553,85$ No, it will not be considered as a successful day because with 19 staff members, the sales should be around R34 553, not only R23 000.	✓ substitution of 19 into equation (1.2) ✓ No, with any acceptable reason (2)
1.4	The correlation coefficient would remain approximately the same (or increase very slightly) because the additional data point lies close to the existing line of best fit and follows the same positive linear trend.	✓ conclusion ✓ reason (2)
		[9]
QUESTION 2		
2.1	$d(10) = 2(10)^2 - 5(10) - 12$ $= 138$ $d(14) = 2(14)^2 - 5(14) - 12$ $= 310$ $(10;138) \quad (14;310)$ $\text{Average rate of change} = \frac{310 - 138}{14 - 10}$ $= 43m / s$	✓ values for $d(10)$ and $d(14)$ ✓ substitution into formula ✓ answer (3)
2.2	$d'(t) = 4t - 5$ But immediate rate of change $= d'(t) = 75$ $\therefore 4t - 5 = 75$ $4t = 80$ $t = 20$ $t = 20 \text{ seconds}$	✓ $d'(t) = 75$ ✓ value of t (2)
		[5]

QUESTION 3		
3.1	$\text{Volume} = l \times b \times h$ $= x \times 2x(60 - 2x)$ $= 2x^2(60 - 2x)$ $= 120x^2 - 4x^3$	✓ substitution of all 3 dimensions into the correct formula ✓ answer (2)
3.2	$V'(x) = 0 \text{ for Maximum Volume}$ $240x - 12x^2 = 0$ $12x(20 - x) = 0$ $x \neq 0 \text{ or } x = 20$ $h = 20 \text{ meters}$ $l = 40 \text{ meters}$ $b = 20 \text{ meters}$	✓ $V'(x) = 0$ ✓ Values for x ✓ all 3 dimensions (3) NOTE: CA from 3.1
		[5]
QUESTION 4		
4.1	$F = \frac{2500 \left[\left(1 + \frac{6}{1200} \right)^{61} - 1 \right]}{\frac{6}{1200}}$ $= 177\,797,20$	✓ $n = 61$ ✓ substitution into the correct formula ✓ answer (3)
4.2.1	$1200\,000 \times \frac{10}{100} = 120\,000$ $\therefore 1200\,000 - 120\,000 = 1080\,000$ OR $1200\,000 \times \frac{90}{100}$ $= 1080\,000$	✓ 120 000 ✓ subtracting deposit from 1 200 000 (2) OR ✓ $1200\,000 \times \frac{90}{100}$ ✓ answer (2)

4.2.2	$1080\,000 = \frac{15\,000 \left[1 - \left(1 + \frac{9,1}{1200} \right)^{-n} \right]}{\frac{9,1}{1200}}$ $\frac{227}{500} = \left(\frac{12091}{12000} \right)^{-n}$ $\log_{\frac{12091}{12000}} \frac{227}{500} = -n$ $104,5250679 = n$ $\therefore 105 \text{ payments}$	✓ substitution into the correct formula ✓ correct use of log ✓ answer (3)
4.2.3	Outstanding balance: $P = \frac{15\,000 \left[1 - \left(1 + \frac{9,1}{1200} \right)^{-14,5250679} \right]}{\frac{9,1}{1200}} \quad \text{OR}$ $= 205\,568,9841$ $OB = 1\,080\,000 \left(1 + \frac{9,1}{1200} \right)^{90} - \frac{15\,000 \left[\left(1 + \frac{9,1}{1200} \right)^{90} - 1 \right]}{\frac{9,1}{1200}}$ $= 205\,568,9834$ Interest on the balance of missed payments: $A = 205\,568,9841 \left(1 + \frac{9,1}{1200} \right)^5$ $= 213\,482,5903$ New monthly payment: $213\,482,5903 = \frac{x \left[1 - \left(1 + \frac{9,1}{1200} \right)^{-10} \right]}{\frac{9,1}{1200}} \quad \text{OR}$ $22\,248,75 = x$	✓ correct substitution into P-formula (must use decimals for n) ✓ outstanding balance ✓ correct substitution to calculate interest ✓ new balance ✓ correct substitution into P formula to calculate new payment

	$213\,482,5903 \left(1 + \frac{9,1}{1200}\right)^{10} = \frac{x \left[\left(1 + \frac{9,1}{1200}\right)^{10} - 1 \right]}{\frac{9,1}{1200}}$ $230\,235,4611 = x(10,34824325)$ $22\,248,75 = x$	✓ new monthly payment (6)
		[14]
QUESTION 5		
5.1	 A Venn diagram with a rectangular universal set U. Inside U are two overlapping circles, A and B. The region inside A but outside B is labeled $0,25$. The intersection of A and B is labeled $0,3$. The region inside B but outside A is labeled $0,35$. The region outside both A and B is labeled $0,1$.	✓ 0,25 ✓ 0,3 ✓ 0,35 ✓ 0,1 (4)
5.2	$P(A) = 0,55$	✓ answer (1)
		[5]
QUESTION 6		
6.1.1	$26 \times 25 \times 24 \times 10 \times 9 \times 8$ $= 11\,232\,000$	✓ $26 \times 25 \times 24$ ✓ $10 \times 9 \times 8$ ✓ answer (3)
6.1.2	$5 \times 25 \times 24 \times 9 \times 8 \times 3$ $= 648\,000$ $P(A) = \frac{648\,000}{11\,232\,000} = \frac{3}{52}$	✓ $5 \times 25 \times 24 \times 8 \times 9 \times 3$ ✓ answer ✓ probability (3)
6.2	$3 \times 5 \times 2$ $= 30$	✓ $3 \times 5 \times 2$ ✓ answer (2)
6.3	$1 \times 1 \times 5! = 120$	✓ answer (1)

6.4	$n(\text{start and end with L}) = \frac{1 \times 1 \times 5!}{2!} = 60$ $\text{Total} = \frac{7!}{2!2!} = 1260$ $\therefore P(\text{start and end with L}) = \frac{60}{1260} = \frac{1}{21}$	✓How many start and end with L ✓Total ✓answer (3)
		[12]

TOTAL: 50