GRADE 8 · NOVEMBER EXAM 2026

# Preparation: Paper 1 Memorandum

Numbers, Operations and Relationships · Patterns, Functions and Algebra

TOTAL **132 marks** TIME **self-paced**

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*A preparation worksheet for the Grade 8 Mathematics November examination: every type of question in the scope appears at least twice.*

- One ✓ = one mark. Accept any other mathematically correct method.
- Consistent accuracy applies: an error carried forward is penalised only once.
- Mark your own work, then redo every question that you got wrong.

## QUESTION 1

| | | | |
|---|---|---|---|
| **1.1** | 252 = 2 × 2 × 3 × 3 × 7 ✓<br>= $2^2 \times 3^2 \times 7$ ✓ | ✓ prime factors<br>✓ exponential form | (2) |
| **1.2** | 600 = 2 × 2 × 2 × 3 × 5 × 5 ✓<br>= $2^3 \times 3 \times 5^2$ ✓ | ✓ prime factors<br>✓ exponential form | (2) |
| **1.3** | 5 + 3 = 8 parts, so 1 part = R720 ÷ 8 = R90 ✓<br>Sipho: 5 × R90 = R450; Lerato: 3 × R90 = R270 ✓ | ✓ 1 part = R90<br>✓ both shares | (2) |
| **1.4** | 7 − 3 = 4 parts = R480, so 1 part = R120 ✓<br>Total = 10 parts = 10 × R120 = R1 200 ✓ | ✓ 1 part = R120<br>✓ answer | (2) |
| **1.5** | 5 − 2 = 3 parts = R1 200, so 1 part = R400 ✓<br>Amahle: 2 × R400 = R800<br>Kagiso: 5 × R400 = R2 000 ✓ | ✓ 1 part = R400<br>✓ both shares | (2) |
| **1.6** | Deposit = $\frac{10}{100} \times$ R9 000 = R900<br>Balance = R9 000 − R900 = R8 100 ✓<br>Interest = R8 100 × $\frac{15}{100} \times 2$ = R2 430 ✓<br>Instalment = $\frac{\text{R8 100} + \text{R2 430}}{24} = \frac{\text{R10 530}}{24}$ = R438,75 ✓ | ✓ balance R8 100<br>✓ interest R2 430<br>✓ instalment R438,75 | (3) |
| **1.7.1** | Deposit = $\frac{25}{100} \times$ R12 000 = R3 000<br>Balance = R12 000 − R3 000 = R9 000 ✓<br>Interest = R9 000 × $\frac{8}{100} \times 3$ = R2 160 ✓<br>Instalment = $\frac{\text{R9 000} + \text{R2 160}}{36} = \frac{\text{R11 160}}{36}$ = R310 ✓ | ✓ balance R9 000<br>✓ interest R2 160<br>✓ instalment R310 | (3) |

| | | | |
|---|---|---|---|
| **1.7.2** | Total paid = R3 000 + 36 × R310 = R14 160 ✓<br>R14 160 − R12 000 = R2 160 more ✓ | ✓ total R14 160<br>✓ answer | (2) |
| | | **TOTAL** | **[18]** |

## QUESTION 2

| | | | |
|---|---|---|---|
| **2.1.1** | = 4 − 12 ✓<br>= −8 ✓ | ✓ division and multiplication first<br>✓ answer | (2) |
| **2.1.2** | = 18 + 20 − 2 ✓<br>= 36 ✓ | ✓ multiplication first<br>✓ answer | (2) |
| **2.1.3** | $\sqrt[3]{-125}$ = −5 ✓<br>−5 + 9 = 4 ✓ | ✓ cube root of −125<br>✓ answer | (2) |
| **2.1.4** | $(-2)^3 = -8$ and $\sqrt[3]{-8} = -2$ ✓<br>−8 − (−2) = −6 ✓ | ✓ cube and cube root<br>✓ answer | (2) |
| **2.2.1** | Commutative property (of multiplication) ✓ | ✓ answer | (1) |
| **2.2.2** | Distributive property ✓ | ✓ answer | (1) |
| **2.2.3** | Associative property (of addition) ✓ | ✓ answer | (1) |
| **2.2.4** | Additive inverse ✓ | ✓ answer | (1) |
| **2.3.1** | $a^8$ ✓ | ✓ answer | (1) |
| **2.3.2** | $12m^7$ ✓ | ✓ answer | (1) |
| **2.3.3** | $4b^6$ ✓ | ✓ answer | (1) |
| **2.3.4** | $5k^6$ ✓ | ✓ answer | (1) |
| **2.3.5** | $y^{12}$ ✓ | ✓ answer | (1) |
| **2.3.6** | $-27t^6$ ✓ | ✓ answer | (1) |
| **2.3.7** | 5 × 1 = 5 ✓ | ✓ answer | (1) |
| **2.3.8** | 1 + 1 = 2 ✓ | ✓ answer | (1) |
| **2.4.1** | $6{,}3 \times 10^7$ ✓ | ✓ answer | (1) |
| **2.4.2** | $9{,}46 \times 10^{12}$ km ✓ | ✓ answer | (1) |
| **2.5** | 4 050 000 ✓ | ✓ answer | (1) |
| **2.6.1** | $4^{24} = (2^2)^{24} = 2^{48}$ ✓<br>$2^{50} > 2^{48}$, so $2^{50}$ is the larger number ✓ | ✓ same base<br>✓ conclusion | (2) |

| | | | |
|---|---|---|---|
| **2.6.2** | $27^8 = (3^3)^8 = 3^{24}$ and $9^{13} = (3^2)^{13} = 3^{26}$ ✓<br>$3^{26} > 3^{24}$, so $9^{13}$ is the larger number ✓ | ✓ same base<br>✓ conclusion | (2) |
| | | **TOTAL** | **[27]** |

## QUESTION 3

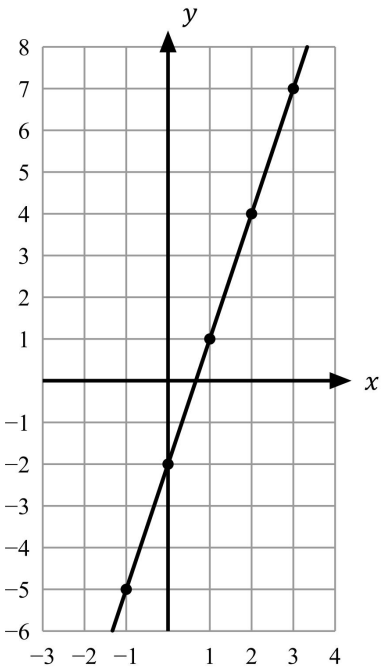
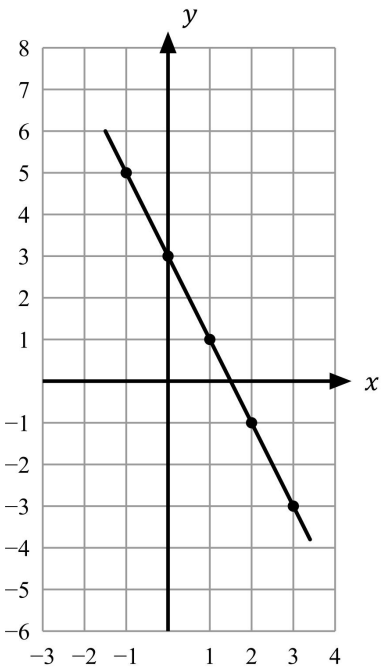
| | | | |
|---|---|---|---|
| **3.1.1** | $\frac{9}{4} \div \frac{3}{2} = \frac{9}{4} \times \frac{2}{3}$ ✓<br>$= \frac{18}{12} = \frac{3}{2} = 1\frac{1}{2}$ ✓ | ✓ improper fractions and reciprocal<br>✓ answer | (2) |
| **3.1.2** | $\frac{10}{3} \div \frac{5}{2} = \frac{10}{3} \times \frac{2}{5}$ ✓<br>$= \frac{20}{15} = \frac{4}{3} = 1\frac{1}{3}$ ✓ | ✓ improper fractions and reciprocal<br>✓ answer | (2) |
| **3.1.3** | $\frac{5}{6} + \frac{4}{9}$ ✓<br>$= \frac{15}{18} + \frac{8}{18} = \frac{23}{18} = 1\frac{5}{18}$ ✓ | ✓ square root and square<br>✓ answer | (2) |
| **3.1.4** | $\frac{2}{3} - \frac{1}{9}$ ✓<br>$= \frac{6}{9} - \frac{1}{9} = \frac{5}{9}$ ✓ | ✓ cube root and square<br>✓ answer | (2) |
| **3.2.1** | 0,024 ✓ | ✓ answer | (1) |
| **3.2.2** | 0,2 ✓ | ✓ answer | (1) |
| **3.2.3** | 256 ÷ 16 = 16 ✓ | ✓ answer | (1) |
| **3.2.4** | 90 ÷ 3 = 30 ✓ | ✓ answer | (1) |
| **3.2.5** | 0,09 ✓ | ✓ answer | (1) |
| **3.2.6** | 0,001 ✓ | ✓ answer | (1) |
| **3.3.1** | $\frac{36}{45} \times 100\% = 80\%$ ✓ | ✓ answer | (1) |
| **3.3.2** | $\frac{51}{75} \times 100\% = 68\%$ ✓ | ✓ answer | (1) |
| **3.4.1** | 80% of the original price = R640 ✓<br>Original price = $\frac{\text{R}640}{0,8}$ = R800 ✓ | ✓ 80% = R640<br>✓ answer | (2) |
| **3.4.2** | 85% of the original price = R2 550 ✓<br>Original price = $\frac{\text{R}2\,550}{0,85}$ = R3 000 ✓ | ✓ 85% = R2 550<br>✓ answer | (2) |
| | | **TOTAL** | **[20]** |

## QUESTION 4

| | | | |
|---|---|---|---|
| **4.1.1** | $a = 9$ ✓ | ✓ answer | (1) |
| **4.1.2** | $T_n = 2n$ ✓ + 1 ✓ | ✓ $2n$<br>✓ + 1 | (2) |
| **4.1.3** | $b = 2(30) + 1 = 61$ ✓ | ✓ answer | (1) |
| **4.1.4** | $2n + 1 = 85$, so $2n = 84$ and $n = 42$ ✓<br>$n$ is a whole number: YES, Figure 42 uses 85 matchsticks ✓ | ✓ solving $2n + 1 = 85$<br>✓ conclusion | (2) |
| **4.2.1** | $c = 21$ ✓ | ✓ answer | (1) |
| **4.2.2** | $T_n = 5n$ ✓ + 1 ✓ | ✓ $5n$<br>✓ + 1 | (2) |
| **4.2.3** | $d = 5(20) + 1 = 101$ ✓ | ✓ answer | (1) |
| **4.2.4** | $5n + 1 = 150$, so $5n = 149$ and $n = 29{,}8$ ✓<br>$n$ is not a whole number, so 150 is NOT a term ✓ | ✓ solving $5n + 1 = 150$<br>✓ conclusion | (2) |
| | | **TOTAL** | **[12]** |

## QUESTION 5

| | | | |
|---|---|---|---|
| **5.1.1** | $q = 3(-1) - 4 = -7$ ✓ | ✓ answer | (1) |
| **5.1.2** | $3p - 4 = 17$ ✓<br>$3p = 21$, so $p = 7$ ✓ | ✓ equation<br>✓ answer | (2) |
| **5.1.3** | $y = 3x - 4$ ✓ | ✓ answer | (1) |
| **5.2.1** | $q = -4(-2) + 1 = 9$ ✓ | ✓ answer | (1) |
| **5.2.2** | $-4p + 1 = -11$ ✓<br>$-4p = -12$, so $p = 3$ ✓ | ✓ equation<br>✓ answer | (2) |
| **5.2.3** | $y = -4x + 1$ ✓ | ✓ answer | (1) |
| **5.3.1** | Between 0 and 10 minutes ✓ | ✓ answer | (1) |
| **5.3.2** | Between 10 minutes and 30 minutes ✓ | ✓ answer | (1) |
| **5.3.3** | 20 minutes = $\frac{20}{60}$ hour; distance = $24 \times \frac{20}{60}$ ✓<br>= 8 km ✓ | ✓ speed × time in hours<br>✓ answer | (2) |
| **5.4.1** | Between 20 and 30 minutes ✓ | ✓ answer | (1) |
| **5.4.2** | Between 5 minutes and 20 minutes ✓ | ✓ answer | (1) |

| | | | |
|---|---|---|---|
| **5.4.3** | 15 minutes = $\frac{15}{60}$ hour; distance = $80 \times \frac{15}{60}$ ✓<br>= 20 km ✓ | ✓ speed × time in hours<br>✓ answer | (2) |
| **5.5.1** | $y$: −5 ; −2 ; 1 ; 4 ; 7 ✓<br><br><br>Points plotted and joined with a straight line ✓ | ✓ table values<br>✓ straight line through the points | (2) |
| **5.5.2** | $y$: 5 ; 3 ; 1 ; −1 ; −3 ✓<br><br><br>Points plotted and joined with a straight line ✓ | ✓ table values<br>✓ straight line through the points | (2) |
| | | **TOTAL** | **[20]** |

## QUESTION 6

| | | | |
|---|---|---|---|
| **6.1.1** | 4 ✓ | ✓ answer | (1) |

| | | | |
|---|---|---|---|
| **6.1.2** | 1 ✓ | ✓ answer | (1) |
| **6.1.3** | −8 ✓ | ✓ answer | (1) |
| **6.2** | −3 ✓ | ✓ answer | (1) |
| **6.3** | $4xy$ and $7yx$ ✓ | ✓ answer | (1) |
| **6.4.1** | $2x^2y$ ✓ $-2xy^2$ ✓ | ✓ $2x^2y$<br>✓ $-2xy^2$ | (2) |
| **6.4.2** | $2m^2 + 2m$ ✓ $-2n$ ✓ | ✓ $2m^2 + 2m$<br>✓ $-2n$ | (2) |
| **6.4.3** | $6a^3 - 8a^2$ ✓ $+10a$ ✓ | ✓ $6a^3 - 8a^2$<br>✓ $+10a$ | (2) |
| **6.4.4** | $-4p^3 - 8p^2$ ✓ $+12p$ ✓ | ✓ $-4p^3 - 8p^2$<br>✓ $+12p$ | (2) |
| **6.4.5** | $= 3x^2 + 6x - 2x^2 + 5x$ ✓<br>$= x^2 + 11x$ ✓ | ✓ removing the brackets<br>✓ answer | (2) |
| **6.4.6** | $= 10y - 5 - 2y - 6$ ✓<br>$= 8y - 11$ ✓ | ✓ removing the brackets<br>✓ answer | (2) |
| **6.5** | $(-3)^2 - 3(-3)(2)$ ✓<br>$= 9 + 18 = 27$ ✓ | ✓ substitution<br>✓ answer | (2) |
| **6.6** | $2(4)^2 + 4(-1)^3$ ✓<br>$= 32 - 4 = 28$ ✓ | ✓ substitution<br>✓ answer | (2) |
| | | **TOTAL** | **[21]** |

## QUESTION 7

| | | | |
|---|---|---|---|
| **7.1.1** | $x = 5$ ✓ | ✓ answer | (1) |
| **7.1.2** | $x = -7$ ✓ | ✓ answer | (1) |
| **7.1.3** | $4x = 16$ ✓<br>$x = 4$ ✓ | ✓ like terms together<br>✓ answer | (2) |
| **7.1.4** | $3x - 6 = x + 8$ ✓<br>$2x = 14$, so $x = 7$ ✓ | ✓ removing the brackets<br>✓ answer | (2) |
| **7.1.5** | $2^x = 2^5$ ✓<br>$x = 5$ ✓ | ✓ $32 = 2^5$<br>✓ answer | (2) |
| **7.1.6** | $5^{x+1} = 5^3$ ✓<br>$x + 1 = 3$, so $x = 2$ ✓ | ✓ $125 = 5^3$<br>✓ answer | (2) |

| | | | |
|---|---|---|---|
| **7.2** | Let the daughter be $x$ years old; the mother is $3x$.<br>$3x + 12 = 2(x + 12)$ ✓<br>$3x + 12 = 2x + 24$<br>$x = 12$: the daughter is 12 and the mother is 36 ✓ | ✓ equation<br>✓ answer | (2) |
| **7.3** | $x + (x + 1) + (x + 2) = 87$ ✓<br>$3x + 3 = 87$, so $x = 28$: 28 ; 29 ; 30 ✓ | ✓ equation<br>✓ answer | (2) |
| | | **TOTAL** | **[14]** |

**TOTAL: 132**