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MATHEMATICS TEST

GRADE 8 · TERM 3 · SEPTEMBER 2025

Algebraic Expressions · Equations · Geometry of Straight Lines · Triangles

TOTAL: 50 MARKS **TIME: 1 HOUR** **EXAMINER: MR SIMONS**

MEMORANDUM / MARKING GUIDELINE

One ✓ = one mark. Accept any other mathematically correct method.

QUESTION 1

1.1.1	$5x + 10y - 11x + 8y$ $= -6x$ ✓ $+ 18y$ ✓	✓ $-6x$ ✓ $18y$	(2)
1.1.2	$(4 + 10x) - (4x - 5)$ $= 4 + 10x - 4x + 5$ ✓ $= 6x + 9$ ✓	✓ removing the brackets ✓ answer	(2)
1.1.3	$\frac{22y^3 - 12y^2 + 6y}{2y} = \frac{22y^3}{2y} - \frac{12y^2}{2y} + \frac{6y}{2y}$ $= 11y^2$ ✓ $- 6y$ ✓ $+ 3$ ✓	✓ $11y^2$ ✓ $-6y$ ✓ 3	(3)
1.1.4	$\sqrt{28x^2 + 8x^2} + 3x$ $= \sqrt{36x^2} + 3x$ ✓ $= 6x + 3x$ ✓ $= 9x$ ✓	✓ $36x^2$ ✓ $6x$ ✓ answer	(3)
1.1.5	$3x^2 + 2y^3 - 1 = 3(-2)^2 + 2(4)^3 - 1$ ✓✓ $= 12 + 128 - 1$ $= 139$ ✓	✓✓ substituting $x = -2$ and $y = 4$ ✓ answer	(3)
1.2.1	$x = 18 - 10$ $x = 8$ ✓	✓ answer	(1)
1.2.2	$\frac{2x + 6}{3} = 4$ $2x + 6 = 12$ ✓ $2x = 6$ ✓ $x = 3$ ✓	✓ multiplying by 3 ✓ $2x = 6$ ✓ answer	(3)
1.2.3	$2^{x+2} = 64$ $2^{x+2} = 2^6$ ✓ $x + 2 = 6$ ✓ $x = 4$ ✓	✓ $64 = 2^6$ ✓ equating the exponents ✓ answer	(3)
		TOTAL	**[20]**

QUESTION 2

2.1	$90° - 40° = 50°$ ✓	✓ answer	(1)
2.2	$180° - 75° = 105°$ ✓	✓ answer	(1)
2.3.1	$a + 90° + 42° = 180°$ ✓ (angles on a straight line) $a = 48°$ ✓	✓ statement with reason ✓ answer	(2)
2.3.2	$b = 120°$ ✓ (vertically opposite angles) ✓ $c = 120°$ ✓ (corresponding angles, MN // PQ) ✓ $a = 180° - 120° = 60°$ ✓ (angles on a straight line) ✓	✓ $b = 120°$ ✓ reason ✓ $c = 120°$ ✓ reason ✓ $a = 60°$ ✓ reason	(6)
2.4	$2x - 40° + 2x + 20° = 180°$ ✓ (angles on a straight line) ✓ $4x = 200°$ $x = 50°$ ✓	✓ equation ✓ reason ✓ answer	(3)
2.5	$5x + 20° = 80°$ ✓ (alternate angles, AG // BF) ✓ $5x = 60°$ $x = 12°$ ✓ $(5x + 20°) + y + 75° = 180°$ ✓ (co-interior angles, KD // JE) ✓ $80° + y + 75° = 180°$ $y = 25°$ ✓	✓ $5x + 20° = 80°$ ✓ reason ✓ $x = 12°$ ✓ equation with 75° ✓ reason ✓ $y = 25°$	(6)
		TOTAL	**[19]**

QUESTION 3

3.1	$a = 180° - 60° - 100° = 20°$ ✓ (sum of the angles of a triangle) ✓ $b = 60° + 100° = 160°$ ✓ (exterior angle of a triangle) ✓ [Also accept: $b = 180° - 20°$, angles on a straight line]	✓ $a = 20°$ ✓ reason ✓ $b = 160°$ ✓ reason	(4)
3.2.1	$3x + 30° + x + 10° + x = 180°$ ✓ (sum of the angles of a triangle) ✓ $5x + 40° = 180°$ $5x = 140°$ $x = 28°$ ✓	✓ equation ✓ reason ✓ answer	(3)
3.2.2	$\hat{H} = 3(28°) + 30° = 114°$ ✓ $\hat{J} = 28° + 10° = 38°$ ✓ $\hat{G} = x = 28°$ ✓	✓ $\hat{H} = 114°$ ✓ $\hat{J} = 38°$ ✓ $\hat{G} = 28°$	(3)

3.2.3	An obtuse-angled triangle ($\hat{H} = 114°$) ✓ [Also accept: scalene — no two angles are equal]	✓ obtuse-angled (or scalene)	(1)
		TOTAL	**[11]**

TOTAL: 50