

TEACHERS WITHOUT BORDERS PROGRAMME

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Department:
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In Bill Gates words, at the Mandela Day 'Living Together' address: "Maintaining the quality of this country's higher education system while expanding access to more students will not be easy. But it's critical to South Africa's future" – working together, we can help achieve this."

Contributing schools to date:

Clifton School	Milnerton High	Rustenburg Girls' High	St Peter's
Durban Girls'	Northwood High	St Anne's DC	St Stithians
Fairmont High	Roedean	St John's DSG	Wynberg Boys' High
Herzlia High	Rondebosch Boys'	St Mary's DSG Kloof	Wynberg Secondary

Gr 8 MATHEMATICS JUNE 2014 EXAM

MEMO

SECTION A

Question 1

1 ✓ per correct answer

1.1	C
1.2	B
1.3	A
1.4	C
1.5	C
1.6	B
1.7	A
1.8	D
1.9	C
1.10	B

[10]

QUESTION 2

1 mark per row

Number		<i>Natural</i>	<i>Integer</i>	<i>Rational</i>	<i>Irrational</i>	<i>Real</i>
2.1	3	✓	✓	✓		✓
2.2	$\sqrt{25}$	✓	✓	✓		✓
2.3	$\frac{22}{7}$			✓		✓
2.4	3,12̄			✓		✓
2.5	2,315...				✓	✓

[5]

QUESTION 3

3.1.1 18 or 24 ✓(accept either one) (1)

3.1.2 49 ✓ (1)

3.1.3 13 ✓ (1)

3.1.4 8 or 24 ✓(accept either one) (1)

3.1.5 13 ✓ (1)

3.1.6 24 ✓ (1)

3.2

2	360	✓✓ for ladder/factor tree, -1 per mistake
2	180	
2	90	
3	45	
3	15	
5	5	
	1	

$360 = 2^3 \times 3^2 \times 5$ ✓ (3)

[9]

QUESTION 4

4.1 $2 - 4(-5)$ ✓ = 22 ✓ (2)

4.2 $(16 \times 2 - 8)$ ✓ ÷ 3 = 8 ✓ (3)

4.3 $\left(\frac{3}{2} + \frac{15}{4}\right)$ ✓ ÷ $\left(\frac{3}{8} - \frac{2}{8}\right)$ ✓
 $= \left(\frac{6}{4} + \frac{15}{4}\right) \times \left(\frac{8}{1}\right)$ ✓ = $\frac{21}{4}$ ✓ × $\frac{8}{1}$ = 42 ✓ (6)

[11]

QUESTION 5

5.1 Four terms ✓ (1)

5.2 $\frac{1}{3}$ ✓ (1)

5.3 2 ✓ (1)

5.4 $\frac{y^5}{3} + 7y^2 - 6y + 2$ ✓✓ (-1 per error) (2)

5.5 $\frac{(-1)^5}{3} + 7(-1)^2 - 6(-1) + 2$
 $= -\frac{1}{3} + 7 + 6 + 2$ ✓ = $14\frac{2}{3}$ ✓ (3)

[8]

QUESTION 6

6.1 $3a$ ✓ (1)

6.2 a^3 ✓ (1)

6.3 $-6a$ ✓ (1)

6.4 $-3a^2 + 5a^2$ ✓ = $2a^2$ ✓ (2)

6.5 $-8x^3$ ✓✓ (2)

6.6 $-15a^4b^6$ ✓✓✓ (3)

6.7 $4a^6b^8$ ✓✓✓ (3)

6.8 $3x^2y - 5xy^2$ ✓ (2)

6.9 $-3x + 6 - 8x - 12$ ✓ = $-11x - 6$ ✓✓ (4)

6.10 $\frac{4x^2}{y^2}$ ✓✓ (3)

6.11 $\frac{5x^2}{10x^2}$ ✓ = $\frac{1}{2}$ ✓ (2)

6.12 $8a^4e^5$ ✓✓✓ (3)

$$6.13 \quad 5a + 2c + 4b \checkmark \checkmark \checkmark \quad (3)$$

[30]

QUESTION 7

$$7.1.1 \quad x + 3 \checkmark \quad (1)$$

$$7.1.2 \quad p - 5 \checkmark \quad (1)$$

$$7.1.3 \quad mn \checkmark \quad (1)$$

$$7.1.4 \quad 5x^2 \checkmark \quad (1)$$

$$7.1.5 \quad 4(x + y) \checkmark \checkmark \quad (2)$$

$$7.2.1 \quad x = -14 \checkmark \quad (1)$$

$$7.2.2 \quad x = -72 \checkmark \quad (1)$$

$$7.2.3 \quad 12 \checkmark = 3x \checkmark$$

$$x = 4 \checkmark \quad (3)$$

$$7.2.4 \quad 4x - 8 \checkmark - 2x - 2 \checkmark = 4$$

$$2x = 14 \checkmark$$

$$x = 7 \checkmark \quad (4)$$

[15]

QUESTION 8

- 8.1.1 Reflex ✓ (1)
- 8.1.2 70° ✓ (1)
- 8.1.3 Scalene ✓ (1)
- 8.1.4 Complementary ✓ (1)
- 8.1.5 180° ✓ (1)
-
- 8.2.1 Angles on a straight line ✓ (1)
- 8.2.2 Vertically opp. ✓ (1)
- 8.2.3 Revolution ✓ (1)
- 8.2.4 Co-interior angles $PQ \parallel RS$ ✓ (1)
- 8.2.5 Alternate angles $PQ \parallel RS$ ✓ (1)
- 8.2.6 Corresponding angles $RS \parallel TU$ ✓ (1)
-
- 8.3.1 $b = 35^\circ$ Vertically opposite angles ✓ (2)
 $c = 45^\circ$ Angles on a straight line ✓
- 8.3.2 $h = 85^\circ$ Ext. angles of Δ ✓ (1)
- 8.3.3 $k = 44^\circ$ Isosceles Δ ✓ (1)
- 8.3.4 $x = 160^\circ$ Alt. angles $AB \parallel CD$ ✓ (1)
 $y = 20^\circ$ Angles on a straight line ✓ (1)

No reason, no mark. No // lines named, no mark ☹

[17]

Total section A: 105

SECTION B

QUESTION 9

$$9.1.1 \quad \frac{4a^4b^85ab^2}{10a^2} = \frac{20a^5b^{10}}{10a^2} \checkmark = 2a^3b^{10} \checkmark \quad (4)$$

$$9.1.2 \quad \frac{16x^6}{2x^3} - 8x^3 = 8x^3 \checkmark - 8x^3 \checkmark = 0 \checkmark \quad (3)$$

$$9.1.3 \quad 2a^3b + 2ab^3 \checkmark - a^3b - 2ab^3 \checkmark = a^3b \checkmark \quad (3)$$

$$9.2 \quad 5x^2 - 5xy + 9 \checkmark \checkmark \checkmark \quad (3)$$

$$9.3 \quad 61(2 + 3 + 5) \checkmark = 610 \checkmark \text{ (do not accept long multiplication)} \quad (2)$$

$$9.4 \quad A + 90 = 160 \checkmark$$

$$A = 70 \checkmark$$

$$X = 20 \checkmark \quad (3)$$

[18]

QUESTION 10

$$10.1.1 \quad 2m - 12 = 24 \checkmark$$

$$2m = 36 \checkmark$$

$$m = 19 \checkmark \quad (3)$$

$$10.1.2 \quad -18 + 3y \checkmark + 2y^2 = 9 + 2y^2 + 6y \checkmark$$

$$-3y = 27 \checkmark$$

$$y = -9 \checkmark \quad (4)$$

$$10.1.3 \quad 2x - 3 = 2x - 8 \checkmark$$

$$-3 = -8 \checkmark$$

$$\therefore \text{False equation} \checkmark \quad (3)$$

$$10.2 \quad x + x + 1 + x + 2 = 72 \checkmark$$

$$3x = 69 \checkmark$$

$$x = 23 \checkmark$$

\therefore Her birthday is the 24th of April \checkmark

(4)

[14]

QUESTION 11

$$11.1 \quad 60^\circ \checkmark$$

(1)

$$11.2 \quad 85^\circ \checkmark$$

(1)

$$11.3 \quad 35^\circ + 3x - 30^\circ + 2x + 25^\circ = 180^\circ$$

reason provided and equation is correct)

Angles on a str line \checkmark (give mark if no

$$5x + 30^\circ = 180^\circ$$

$$5x = 150^\circ \checkmark$$

$$x = 30^\circ \checkmark$$

$$y = 85^\circ \checkmark$$

$$z = 60^\circ \checkmark$$

Corr. angles ST || QR \checkmark

Co-int angles ST || QR \checkmark

(7)

$$11.4.1 \quad 180^\circ \checkmark$$

(1)

$$11.4.2 \quad 30 + 30 \checkmark + \frac{30}{3} \checkmark = 70^\circ \checkmark$$

(3)

[13]

Total section B: 45

Total: 150