

TEACHERS WITHOUT BORDERS PROGRAMME

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basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

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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 |

Section A [80 Marks]Question 1

- a) 19 ✓
 b) 25 ✓
 c) $\sqrt[3]{-27}$ ✓
 d) $\frac{3}{8}$ ✓

[4]

Question 2.

a)

| | | | |
|----|-----|---|-----|
| 5 | 275 | 2 | 350 |
| 5 | 55 | 5 | 175 |
| 11 | 11 | 5 | 35 |
| | | 7 | 7 |
| | | | 1 |

b) HCF = $5^2 = 25$

(4)
(2)
[6]

Question 3

- a) $-9 + 5 = -4$
 b) $\frac{-4-8}{-6} = \frac{-12}{-6} = 2$
 c) $5 - (-2) + 4 = 5 + 2 + 4 = 11$

(2)
(3)
(4)
[9]

Question 4

- a) $3c^2$
 b) $-4a$
 c) $3p^2$
 d) 2

(1)
(1)
(1)
(1)

e) $3a + 4ab - 2a$
 = $a + 4ab$

f) $3(x-y) - 2(2x-y) - 3xc$

= $3xc - 3y - 4x + 2y - 3xc$
 = $-4x - y$

g) $\frac{14d^2}{7d} - \frac{7d}{7d}$

= $2d - 1$

h) $10x^9$

i) $6a^4b^2 \times 9a^4b^2$

= $54a^8b^4$

j) $\frac{5p^3 \times p^8q^6}{10p^9q^3}$

= $\frac{5p^{11}q^6}{10p^9q^3}$

= $\frac{p^{10}q^3}{2}$

(4)
[24]

Question 5

a) $-4x^3 + 3x^2 - 4x + 9$ ✓
(1)

b) 4 ✓
(1)

c) 3 ✓
(1)

d) $9 + 3(-1)^2 - 4(-1)^3 - 4(-1)$ ✓
correct signs
 $= 9 + 3 + 4 + 4$ ✓
 $= 20$ ✓
(3)

[6]

Question 6

a) $a + b$ ✓
(1)

b) $axb = ab$ ✓
(1)

c) $3x(p-q)$ or $3(p-q)x$ ✓
(2)

d) $x + 2x = 3x$ ✓
(3)

[7]

Question 7

a) $((3)(-2))^2$ ✓
m subst
 $= (-6)^2$ ✓
 $= 36$ ✓
(2)

[2]

b) $\frac{ab}{c}$ ✓
m sub
 $= \frac{(3)(-2)}{0}$ ✓
 $= \frac{-6}{0}$ ✓
 $= \frac{-6}{0}$ ✓
NO SOLUTION?
(2)

[2]

e) $a - 2b$ ✓
 $= 3 - 2(-2)$ ✓
 $= 3 + 4$ ✓
 $= 7$ ✓
(2)

[2]

Question 8

a) $x = 6$ ✓
(1)

b) $x = -5 \times 2$ ✓
 $x = -10$ ✓
(2)

c) $4x + 9x = 5 + 21$ ✓
m rearrange
 $13x = 26$ ✓
 $x = \frac{26}{13}$ ✓
m ?
 $x = 2$ ✓
(3)

[3]

d) $4(x+3) = 5(6x-2) + 3$ ✓
m distribution

$4x + 12 = 30x - 10 + 3$ ✓
m rearrange
 $4x - 30x = -10 - 12 + 3$ ✓

$-26x = -19$ ✓

$x = \frac{-19}{-26}$ ✓

$x = \frac{19}{26}$ ✓
(4)

[4]

e) $2x^2 = 32$ ✓
m ?
 $x^2 = \frac{32}{2}$ ✓

$x^2 = 16$ ✓

$x = \sqrt{16}$ ✓

$x = \pm 4$ ✓
(3)

[3]

Question 9

$$\begin{aligned} & \checkmark m(+)
 & 3x + 20 + 10 - 2x + 4x + 18 + 5(7 - x) \checkmark A \text{ signs} \\ & = \underline{3x} + 20 + 10 - \underline{2x} + \underline{4x} + 18 + 35 - \underline{5x} \\ & = \underline{83} \checkmark A \end{aligned}$$

[3]

Question 10

$$\checkmark A \quad x - 2 \quad \text{and} \quad x - 1 \quad \checkmark A$$

[2]