Memo June 2019

Question 1

1.1.1) 2, 5, 7, 17, 19, 23, 29 ✓✓ (2)

1.1.2) 4, 12, 15, 16, 20, 21, 27, 30 ✓✓ (2)

1.1.3) 2 ✓ (1)

1.1.4) 4 : 16 ✓✓ (2)

1.1.5) 27 ✓ (1)

1.2.

2	54
3	27
3	9
3	3
	1

2×3^3 ✓A

2	36
2	18
3	9
3	3
	1

$2^2 \times 3^2$ ✓A

2	60
2	30
3	15
5	5
	1

$2^2 \times 3 \times 5$ ✓A

HCF = 2×3 /or 6

= 6 ✓CA (4)

1.3. −12, −8, −4, 3, 7 ✓A (1)

−50, −30, −10, 0, 20 ✓A (1)

TOTAL 14

1.4. $-7 < 2$ ✓ A (1)

$9 > -1$ ✓ A (1)

Question 2

2.1.1. $-8+5$

$= -3$ ✓(A) (1)

2.1.2 $10-(-4)$

$= 10+4$ ✓(A)

$= 14$ ✓(CA) (2)

2.1.3. $2^2 + \sqrt{9}$

$= 4 + 3$ ✓(A)

$= 7$ ✓(CA) (2)

2.1.4. $\sqrt[3]{-1} + \sqrt{36}$

$= -1$ ✓ $+ 6$ ✓ (A)

$= 5$ ✓(CA) (3)

2.1.5. $\sqrt[3]{2^4 + 11}$

$= \sqrt[3]{16 + 11}$ ✓(A)

$= \sqrt[3]{27}$ ✓(A)

$= 3$ ✓(CA) (3)

TOTAL 13

2.1.6 $\sqrt{\frac{-27}{-48}}$

$= \sqrt{\frac{+9}{+16}}$ ✓ (A) ✓ (A) show answer only 1 mark

$= \frac{3}{4}$ ✓ (A) (3)

2.2. a) $-9 - 3 = -12$ ✓

b) $-3 - 3 = -6$ ✓

c) $0 - 3 = -3$ ✓

d) $6 - 3 = 3$ ✓

e) $15 - 3 = 12$ ✓ (5)

Question 3

3.1.1. $\frac{1}{6} - \frac{8}{3}$

$= \frac{1}{6} - \frac{16}{6}$ ✓ (A)

$= -\frac{15}{6} - \frac{5}{2}$ ✓CA (3)

3.1.2. $\frac{3}{10} \times \frac{5}{2}$

$= \frac{3}{4}$ ✓ (A) (1)

3.1.3. $\frac{14}{4} \div \frac{21}{10}$

$= \frac{14}{4} \times \frac{10}{21}$ ✓ (A)

$= \frac{10}{6}$

$= \frac{5}{3}$ ✓ (CA) (2)

✓

TOTAL 14

3.1.4 $0,01 \times 0,05$
$= 0,0005$ ✓A $\quad / \frac{1}{2000}$ (1)

3.1.5 $\sqrt{0,0036}$
$= 0,06$ ✓A $\quad (\frac{3}{50})$ (1)

3.2 $3\frac{1}{5}$

$= \frac{16^{x2}}{5_{x2}} = \frac{32}{10}$

$= 3,2$ ✓✓ (2)

answer only 2 marks

Question 4

4.1.

4.1.1. 3 (1)

4.1.2 1 (1)

4.1.3 1 (1)

4.1.4 5 (1)

4.1.5 1 (1)

4.2.1. $x+6$ (1)

4.2.1. $40-x$ (1)

4.2.3. $8-x$ (1)

4.2.4. $n+4$ (1)

TOTAL 13

✓

4.3

4.3.1 $x + y + w$

$(4) + (-2) + (-1)$

$= 4 - 2 - 1$ ✓ (A)

$= 1$ ✓ (CA) (2)

4.3.2. $y - x$

$= (-2) - (4)$

$= -2 - 4$ ✓ (A)

$= -6$ ✓ (CA) (2)

4.3.3. $\sqrt{-(x)(w)}$

$= \sqrt{-(4)(-1)}$ ✓ (A)

$= \sqrt{4}$ ✓ (A)

$= 2$ ✓ A (3)

Question 5

5.1. $x + x + x = 3x$ ✓A (1)

5.2. $5a^2 + 4a^3 - 2a^2 - 6a^3$

$= 3a^2 - 2a^3$ ✓A ✓A (2)

5.3. $4m^2 \times 2 - 3m^2$

$= 8m^2 - 3m^2$ ✓ (A)

$= 5m^2$ ✓ (CA) (2)

5.4. $4a^2b \times 2a^4b^3$

$= 8a^6b^4$ ✓ ✓ ✓ (3)

✓ TOTAL 15

5.5. $2a^2bc + 3ab^2c - 6ba^2c$

$= -4a^2bc + 3ab^2c$ (2)

✓A ✓A

5.6. $4x + 3xy - 2y + 3x + 6xy + y + 4x - 4xy - y$

$= 11x + 5xy - 2y$ (3)

✓A ✓A ✓A

5.7 $3x^2 - 6x^2 + 4 - \checkmark(5x^2 + 3x - 8)$

$= 3x^2 - 6x^2 + 4 - 5x^2 - 3x + 8$ ✓C(A)

$= -8x^2 - 3x + 12$ ✓ (CA) (3)

5.8. $5a + 7b + c + 9a - 4a - 6 - \checkmark(8a - 2b + c)$

$= \underline{10a + 7b + c}^{\checkmark CA} - 6 - 8a + 2b - c$ ✓CA

$= 2a + 9b - 6$ (4)

✓ (CA)

OR

$5a + 7b + c + 9a - 4a - 6$ OR

$= 10a + 7b + c - 6$ ✓(A)

$10a + 7b + c - 6 - \checkmark(8a - 2b + c)$

$= 10a + 7b + c - 6 - 8a + 2b - c$ ✓(A)

$= 2a + 9b - 6$ ✓ (CA (4)

TOTAL 12

✓

Question 6

6.1. $-4m^2 \times 3m^3$

$= -12m^5$ ✓A ✓A (2)

6.2. $\frac{9a^2b^3}{3a^4b^2}$

$= \frac{3b^1}{1a^2}$ ✓A ✓A ✓A (3)

6.3. $(2a^5)^3$

$= 2^3 a^{8\,15}$

$= 8a^{\$15}$ ✓A ✓A (2)

6.4. $\frac{(a^2b^4)^5 \times ab^4}{(a^3b^5)^3}$ ✓(A)

$= \frac{a^{10}b^{20} \times ab^4}{a^9b^{24}}$ ✓(A)

$= \frac{a^{11}b^{24}}{a^9b^{24}}$ ✓ (CA)

$= \frac{a^2}{1}$ ✓ (CA) (4)

6.5. $\sqrt[3]{-8a^6b^9} \times \sqrt{9a^6b^{10}}$

$= -2a^2b^3$ ✓(A) $\times 3a^3b^5$ ✓(A)

$= -6a^5b^8$ ✓ (CA) (3)

TOTAL 14

✓

6.6. $(x^6 y^9)^{\frac{2}{3}}$

$= x^{6 \times \frac{2}{3}} \cdot y^{9 \times \frac{2}{3}}$

$= x^4 y^6$ ✓(A) ✓(A) (2)

Question 7

7.1. $2(x-3y)$

$= 2x - 6y$ ✓ ✓ (2)

7.2. $-2(2m+n)$

$= -4m - 2n$ ✓ ✓ (2)

7.3. $(g+2h)-5$

$= g + 2h - 5$ ✓ (1)

7.4. $(-2)(x-y)(-4)$

$= (8)(x-y)$ ✓

$= 8x - 8y$ ✓ ✓ (3)

7.5. $2x(-x+y) + 3y(x-y)$

$= -2x^2 + 2xy$ ✓(CA) $+ 3xy - 3y^2$ ✓(A)

$= -2x^2 + 5xy - 3y^2$ ✓(CA) (3)

TOTAL 13

✓

7.6. $-3n^2 + 2n(n+1) - (n^2 - n)$

$= -3n^2 + 2n^2 + 2n$ ✓(CA) $n^2 + n$ ✓(A)

$= -2n^2 + 3n$ ✓ (4)

✓(CA) (CA)

7.7 $\dfrac{3x^2 - 6xy + 12x^2y^2}{-3x}$

$= \dfrac{3x^2}{-3x} - \dfrac{6xy}{-3x} + \dfrac{12x^2y^2}{-3x}$

$= -x$ ✓(A) $+ 2y$ ✓(A) $- 4xy^2$ ✓(A) (3)

Question 8

$\dfrac{3x^3y^3}{20a^2b^2xy} \div \left[\dfrac{3xy}{5ab^3}\right]^2$

$= \dfrac{3x^3y^3}{20a^2b^2xy} \times \dfrac{5^2a^2b^6}{3^2x^2y^2}$ ✓ ✓(A) ✓(A)

$= \dfrac{3 \cdot 5^2 x^3y^3a^2b^6}{3^2 \cdot 20\, x^3y^3a^2b^2}$ ✓(CA)

$= \dfrac{5b^4}{3 \cdot 4}$ or $\dfrac{75b^4}{180}$

$= \dfrac{5b^4}{12}$ ✓(CA) $= \dfrac{5b^4}{12}$ (5)

TOTAL 12.