M1.

(a) 375.112(1656)

Condone if correctly rounded to 7 significant figures or better eg 375.1122

B1

(b) 20^2 or 400 or $\sqrt[3]{1000}$ or 10 or 5

M1

400 – 10 ÷ 5 = 398 or
400 – 2 = 398

A1

[3]

M2.

3^8

B1

[1]

M3.

(a) (81 =) 8 or (80 =) 1

M1

9

SC1 91

A1

Additional Guidance

81 + 1 with answer 91

M1A0

81 + 0 with answer 81

M0A0

8 on answer line without working

M0A0

81 + 80 with answer 8

M0A0

8 × 1 = 8 and 8 × 0 = 0 with answer 8

M0A0

(b) 68

B1

(c) $15x^7y^5$

B1 two terms correct

B2

Additional Guidance

$8x^7y^5$

B1

$15x^6y^5$

B1

$15x^7 \times y^5$

B1

$8x^7 \times y^5$ or $15x^7 \times y^6$

B1

$15x^{12}y^6$

B0

$15x^7 + y^5$

B0

$8x^7 + y^5$

B0

[5]

M4.

Alternative method 1

$(2^2)^4$ or $(2^3)^4$ or 2^{12}

M1

$212 \div 2^8$ or 2^4 or $2^8 \times 2^4 = 2^{12}$

oe

M1

4

A1

Alternative method 2
256 or 4096

M1

4096 ÷ 256 = 16 and 24 = 16

M1

4

A1

[3]

M5.(a) a^{25}

B1

(b) a^{15}

B1

[2]

M6.(a) a^{25}

B1

(b) a^{15}

B1

(c) a^{100}

B1

[3]

M7.(a) 1

B1

(b) $\frac{1}{5^3}$ or $\frac{1}{125}$ or $0.2 \times 0.2 \times 0.2$

$\left(\frac{1}{5}\right)^3$ *or 125−1 or 0.23*

M1

0.008 or $\frac{8}{1000}$

A1

8×10^{-3}

ft Any decimal $0 < x < 1$ correctly converted to standard form

A1 ft

[4]

M8.(a) $6x^2 + 4x + 15x + 10$

Allow one sign or arithmetic error. Must see 4 terms including term in x2, 2 terms in x and a constant term

M1

$6x^2 + 19x + 10$

***NB** Answer only*

6x2 + 19x + b implies M1

ax2 + 19x + 10 implies M1

Do not award if incorrect further work

A1

(b) $9x^4y^8$

B1 for two of 9, x4 or y8

B1 maximum for any use of × signs

B0 for any addition eg 9 + x4 + y8

Deduct one mark for incorrect further work

B2

[4]

M9.(a) 18.3 or $\frac{183}{10}$ **B1**

(b) 8.36 or $\frac{836}{100}$ or $\frac{209}{25}$ **B1**

(c) 0.65 or $\frac{65}{100}$ or $\frac{13}{20}$ **B1**

[3]