Topic 02 – Rearranging Formulae

Note: If questions like these appear on a paper, it is likely that they will be "show that" questions, therefore it will be necessary to show full working rather than simply evaluate the expressions in a calculator.

Q1, (OCR MEI 4751, Jun 2013, Q3)

(i) Evaluate $(0.2)^{-2}$. **[2]**

(ii) Simplify $(16a^{12})^{\frac{3}{4}}$. **[3]**

Q2, (OCR MEI 4751, Jan 2013, Q1)

Find the value of each of the following.

(i) $\left(\frac{5}{3}\right)^{-2}$ **[2]**

(ii) $81^{\frac{3}{4}}$ **[2]**

Q3, (OCR MEI 4751, Jan 2013, Q2)

Simplify $\dfrac{(4x^5y)^3}{(2xy^2)\times(8x^{10}y^4)}$. **[3]**

Q4 (OCR MEI 4751, Jan 2012, Q2)

(i) Evaluate $9^{-\frac{1}{2}}$. **[2]**

(ii) Simplify $\dfrac{(4x^4)^3\,y^2}{2x^2y^5}$. **[3]**

Q5, (OCR 4721, Jun 2016, Q5)

Express the following in the form 2^p.

(i) $(2^5 \div 2^7)^3$ **[2]**

(ii) $5\times 4^{\frac{2}{3}} + 3\times 16^{\frac{1}{3}}$ **[3]**

Q6 (OCR 4721, Jun 2015, Q3)

Express each of the following in the form 5^k.

(i) 25^4 **[1]**

(ii) $\dfrac{1}{\sqrt[4]{5}}$ **[2]**

(iii) $(5\sqrt{5})^3$ **[2]**

Q7 (OCR 4721, Jan 2013, Q2)

Solve the equations

(i) $3^n = 1$, **[1]**

(ii) $t^{-3} = 64$, **[2]**

(iii) $(8p^6)^{\frac{1}{3}} = 8$. **[3]**

Q8 (OCR 4221, Jun 2012, Q2)

Express each of the following in the form 7^k:

(i) $\sqrt[4]{7}$, **[1]**

(ii) $\dfrac{1}{7\sqrt{7}}$, **[2]**

(iii) $7^4 \times 49^{10}$. **[2]**

Q9, (OCR 4721, Jan 2005, Q1i,ii)

(i) Express 11^{-2} as a fraction. [1]

(ii) Evaluate $100^{\frac{3}{2}}$. [2]

Q10, (OCR 4721, Jun 2005, Q5a,b)

(a) Simplify $2x^{\frac{2}{3}} \times 3x^{-1}$. [2]

(b) Express $2^{40} \times 4^{30}$ in the form 2^n. [2]

Q11, (OCR 4721, Jun 2006, Q2i,ii)

(i) Evaluate $27^{-\frac{2}{3}}$. [2]

(ii) Express $5\sqrt{5}$ in the form 5^n. [1]

Q12, (OCR 4721, Jan 2007, Q2)

Evaluate

(i) 6^0, [1]

(ii) $2^{-1} \times 32^{\frac{4}{5}}$. [3]

Q13, (OCR 4721, Jan 2008, Q3)

Solve the equations

(i) $10^p = 0.1$, [1]

(ii) $(25k^2)^{\frac{1}{2}} = 15$, [3]

(iii) $t^{-\frac{1}{3}} = \frac{1}{2}$. [2]

Q14, (OCR 4721, Jan 2009, Q2)

Simplify

(i) $(\sqrt[3]{x})^6$, **[1]**

(ii) $\dfrac{3y^4 \times (10y)^3}{2y^5}$. **[3]**
