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Indices Exam Questions

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

Q4 (OCR MEI 4751, Jan 2012, Q2)

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

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

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Q6 (OCR 4721, Jun 2015, Q3)

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

(i) 25^4 [1]

(ii) $\frac{1}{\sqrt[4]{5}}$ [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) $\frac{1}{7\sqrt{7}}$, [2]

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