JAN 2007

YORKSHIRE MATHS TUTOR

Leave blank

2. (a) Express $\sqrt{108}$ in the form $a\sqrt{3}$, where a is an integer.

(1)

(b) Express $(2-\sqrt{3})^2$ in the form $b+c\sqrt{3}$, where b and c are integers to be found.

(3)

Q2

(Total 4 marks)

JAN 2007

Leave blank

6. (a) Show that $(4+3\sqrt{x})^2$ can be written as $16+k\sqrt{x}+9x$, where k is a constant to be found.

(2)

(b) Find $\int (4+3\sqrt{x})^2 \mathrm{d}x$.

(3)

Q6

(Total 5 marks)

JAN 2008

Leave blank

2. (a) Write down the value of $16^{\frac{1}{4}}$.

(1)

(b) Simplify $(16x^{12})^{\frac{3}{4}}$.

(2)

Q2

(Total 3 marks)

JAN 2009

Leave blank

1. (a) Write down the value of $125^{\frac{1}{3}}$.

(1)

(b) Find the value of $125^{-\frac{2}{3}}$.

(2)

Q1

(Total 3 marks)

JAN 2009

Leave blank

3. Expand and simplify $(\sqrt{7} + 2)(\sqrt{7} - 2)$.

(2)

Q3

(Total 2 marks)

C1 JAN 2011

Leave blank

1. (a) Find the value of $16^{-\frac{1}{4}}$

(2)

(b) Simplify $x\left(2x^{-\frac{1}{4}}\right)^4$

(2)

Q1

(Total 4 marks)

C1 JAN 2011

Leave blank

3. Simplify

$$\frac{5-2\sqrt{3}}{\sqrt{3}-1}$$

giving your answer in the form $p+q\sqrt{3}$, where p and q are rational numbers.

(4)

C1 Jan 2012

Leave blank

2. (a) Simplify

$$\sqrt{32}+\sqrt{18}$$

giving your answer in the form $a\sqrt{2}$, where a is an integer.

(2)

(b) Simplify

$$\frac{\sqrt{32}+\sqrt{18}}{3+\sqrt{2}}$$

giving your answer in the form $b\sqrt{2}+c$, where b and c are integers.

(4)

JUNE 2009

Leave blank

1. Simplify

(a) $\left(3\sqrt{7}\right)^2$

(1)

(b) $\left(8+\sqrt{5}\right)\left(2-\sqrt{5}\right)$

(3)

Q1

(Total 4 marks)

JUNE 2009

Leave blank

2. Given that $32\sqrt{2} = 2^a$, find the value of a.

(3)

Q2

(Total 3 marks)

MAY 2006

Leave blank

6. (a) Expand and simplify $(4 + \sqrt{3})(4 - \sqrt{3})$.

(2)

(b) Express $\frac{26}{4+\sqrt{3}}$ in the form $a + b\sqrt{3}$, where a and b are integers.

(2)

MAY 2007

Leave blank

1. Simplify $(3+\sqrt{5})(3-\sqrt{5})$.

(2)

Q1

(Total 2 marks)

MAY 2007

Leave blank

2. (a) Find the value of $8^{\frac{4}{3}}$.

(2)

(b) Simplify $\frac{15x^{\frac{4}{3}}}{3x}$.

(2)

Q2

(Total 4 marks)

C1 May 2011

Leave blank

1. Find the value of

(a) $25^{\frac{1}{2}}$

(1)

(b) $25^{-\frac{3}{2}}$

(2)

Q1

(Total 3 marks)

C1 May 2012

Leave blank

2. (a) Evaluate $(32)^{\frac{3}{5}}$, giving your answer as an integer.

(2)

(b) Simplify fully $\left(\frac{25x^4}{4}\right)^{-\frac{1}{2}}$

(2)

Q2

(Total 4 marks)

C1 May 2012

Leave blank

3. Show that $\frac{2}{\sqrt{(12)}-\sqrt{(8)}}$ can be written in the form $\sqrt{a} + \sqrt{b}$, where a and b are integers.

(5)

C1 Jan 2013

Leave blank

2. Express 8^{2x+3} in the form 2^y, stating y in terms of x.

(2)

Q2

(Total 2 marks)

C1 Jan 2013

Leave blank

3. (i) Express

$$(5 - \sqrt{8})(1 + \sqrt{2})$$

in the form $a + b\sqrt{2}$, where a and b are integers.

(3)

(ii) Express

$$\sqrt{80} + \frac{30}{\sqrt{5}}$$

in the form $c\sqrt{5}$, where c is an integer.

(3)

C1 MAY 2013

Leave blank

1. Simplify

$$\frac{7+\sqrt{5}}{\sqrt{5}-1}$$

giving your answer in the form $a + b\sqrt{5}$, where a and b are integers.

(4)

Q1

(Total 4 marks)

C1 MAY 2013

Leave blank

3. (a) Find the value of $8^{\frac{5}{3}}$

(2)

(b) Simplify fully $\dfrac{\left(2x^{\frac{1}{2}}\right)^3}{4x^2}$

(3)