National 5 Mathematics

Exam Questions by Topic

Surds & Indices

2015 N5 Past Paper P1, Q13

1. Express $\dfrac{4}{\sqrt{8}}$ with a rational denominator.

Give your answer its simplest form.   (3 marks)

2015 N5 Past Paper P1, Q14

2. Evaluate $8^{\frac{5}{3}}$ (2 marks)

2014 N5 Past Paper P1, Q8

3. Express $\sqrt{40} + 4\sqrt{10} + \sqrt{90}$ as a surd in its simplest form   (3 marks)

2013 N5 Specimen P1, Q7

4. (a) Multiply out the brackets and simplify:

$$x^{\frac{1}{2}}\left(x^{\frac{-3}{2}} + x^{\frac{-1}{2}}\right)$$ (2 marks)

(b) Find the exact value of this expression when $x = 6$ (1 mark)

N5 Practice Paper A, P1, Q13 (b)

5. Express $\sqrt{18} - \sqrt{2} + \sqrt{72}$ as a surd in its simplest form   (3 marks)

N5 Practice Paper A, P2, Q8 (a)

6. Express $a^2(2a^{\frac{-1}{2}} + a)$ in its simplest form (2 marks)

N5 Practice Paper B, P1, Q12

7. Express in its simplest form $y^8 \times (y^3)^{-2}$ (2 marks)

N5 Practice Paper B, P1, Q14 (a)

8. Express $\sqrt{45} - 2\sqrt{5}$ as a surd in its simplest form (2 marks)

N5 Practice Paper C, P1, Q11 (a)

9. Evaluate $8^{\frac{2}{3}}$ (2 marks)

N5 Practice Paper D, P1, Q11

10. Express $\sqrt{12} + 5\sqrt{3} - \sqrt{27}$ as a surd in its simplest form (3 marks)