

1 (a) Simplify  $n^3 \times n^5$

.....  
(1)

(b) Simplify  $\frac{c^3d^4}{c^2d}$

.....  
(2)

(c) Solve  $\frac{5x}{2} > 7$

.....  
(2)

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**(Total for Question 1 is 5 marks)**

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2 Work out the value of  $\frac{\left(5\frac{4}{9}\right)^{-\frac{1}{2}} \times \left(4\frac{2}{3}\right)}{2^{-3}}$

You must show all your working.

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(Total for Question 2 is 4 marks)

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3 (a) Simplify  $(x^3)^5$

.....  
(1)

(b) Expand and simplify  $4(x + 3) + 7(4 - 2x)$

.....  
(2)

(c) Factorise fully  $15x^3 + 3x^2y$

.....  
(2)

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**(Total for Question 3 is 5 marks)**

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4 (a) Express  $\sqrt{\frac{10^{360}}{10^{150} \times 10^{90}}}$  as a power of 10

.....  
(3)

Liam was asked to express  $(12^{50})^2$  as a power of 12

Liam wrote  $(12^{50})^2 = 12^{50^2} = 12^{2500}$

Liam's method is wrong.

(b) Explain why.

.....  
.....  
.....  
(1)

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**(Total for Question 4 is 4 marks)**

5 Simplify  $(2^{-5} \times 2^8)^2$

Give your answer as a power of 2

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.....  
**(Total for Question 5 is 2 marks)**

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6 Work out the value of  $\left(\frac{8}{27}\right)^{\frac{4}{3}}$

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.....  
**(Total for Question 6 is 2 marks)**

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7 (a) Simplify fully  $(3x^5y^6)^4$

.....  
(2)

(b) Expand and simplify  $(x + 2)(x - 3)(x + 4)$

.....  
(3)

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**(Total for Question 7 is 5 marks)**

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