

- 1 (a) Simplify  $(x^3)^5$
- brackets means multiply indices

$$(x^3)^5 = x^{3 \times 5} = x^{15}$$

$$x^{15} \quad (1)$$

(1)

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

$$4(x+3) + 7(4-2x) \quad \text{distribute to all terms in the bracket} \quad (1)$$

$$4x + 12 + 28 - 14x$$

$$40 - 10x$$

collect like terms

$$40 - 10x \quad (1)$$

(2)

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

find all common factors:  
both terms are multiples of  $3x^2$

$$3x^2( \quad + \quad ) \quad \text{Find what remains after } 3x^2 \text{ has been taken out of each term.} \quad (1)$$

$$3x^2(5x+y) \quad (1)$$

(2)

$$3x^2(5x+y)$$

(Total for Question 1 is 5 marks)

2 Work out the value of  $\frac{4^{-6} \times 4^9}{4}$  same base number  
so use indice laws

$$4^{-6} \times 4^9, \text{ add powers } \Rightarrow 4^3 \quad \checkmark \textcircled{1}$$

$$4^3 \div 4^1, \text{ subtract powers } \Rightarrow 4^2 = 16$$

$$\begin{array}{r} \checkmark \textcircled{1} \\ 16 \end{array}$$

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(Total for Question 2 is 2 marks)