The index laws (1)

QUESTION **1** Use the index laws to simplify:

a $x^2 \times x^5$ **b** $a^7 \times a$ **c** $4p^{12} \div 2p^3$ **d** $x^2y^3 \times xy^4$

e $(a^5)^2$ **f** $(3m^2n)^4$ **g** a^0 **h** $6y^0$

i $\frac{x^9}{x^3}$ **j** $\frac{6t^8}{2t^4}$ **k** $\frac{x^2y^5}{x^4y^4}$ **l** $\frac{2ab^6}{8a^2b^6}$

m $(2a^3b^2)^3 \div 4ab$ **n** $15n^9 \div 3n^5 \times 4n$ **o** $(g^4h^3)^2 \times 2(gh^2)^3$

QUESTION **2** Evaluate:

a 2^3 **b** 10^4 **c** 3^1 **d** 6^0

e $4^{\frac{1}{2}}$ **f** $8^{\frac{2}{3}}$ **g** $25^{\frac{3}{2}}$ **h** $32^{0.8}$

QUESTION **3** Write as fractions (in simplest form):

a 5^{-1} **b** 2^{-3} **c** 4^{-4} **d** 10^{-5}

e 6^{-2} **f** $9^{-\frac{1}{2}}$ **g** $16^{-\frac{1}{4}}$ **h** $1000^{-\frac{2}{3}}$

Page 95 1 a x^7 b a^8 c $2p^9$ d x^3y^7 e a^{10} f $81m^8n^4$ g 1 h 6 i x^6 j $3t^4$ k $\frac{y}{x^2}$ l $\frac{1}{4a}$ m $2a^8b^5$ n $20n^5$ o $2g^{11}h^{12}$ 2 a 8 b 10 000 c 3 d 1 e 2 f 4 g 125 h 16 3 a $\frac{1}{5}$ b $\frac{1}{8}$ c $\frac{1}{256}$ d $\frac{1}{100\,000}$ e $\frac{1}{36}$ f $\frac{1}{3}$ g $\frac{1}{2}$ h $\frac{1}{100}$