

6 Simplify and write answers in index form

a $3^5 \times 3^7$

b $4^9 \times 4^{-5}$

c $2^0 \times 2^{-4}$

d $5^{-2} \times 5^{-5}$

e $8^6 : 8^{-4}$

f $12^2 : 12^5$

g $20^{-7} : 20^{-3}$

h $15^3 : 15^0$

e $a^6 \times a^2$

f $b^5 : b^{-9}$

g $c^{-2} : c^{-1}$

h $d^3 \times d^2$

7 Find the value of n in each equation

a $3^n : 3^8 = 81$

b $5^n \times 25 = 625$

c $n^2 \times n = 216$

d $2^n : 2 = 64$

8 This table shows value of powers of 8

Use the table to find the value of

8^1	8^2	8^3	8^4	8^5	8^6
8	64	512	4096	32768	262144

a 64×4096

b $512 : 64$

c $4096 : 262144$

d $32768 : 512$

9 Determine if each expression is rational or irrational

π	34.56	$\sqrt{3}$	0	$3\sqrt{9} \times \sqrt{2}$
0.333333	-1	$\frac{4}{5}$	$\sqrt{16.4}$	2.75812

Rational numbers	Irrational numbers