Manipulating powers

Maths

Mr Clasper

Manipulating powers

1. Write each number as a single power of 2

a) 8 c) 128 e) 2

b) 32 d) 512

2. For each equation find the value of p.

a) $3^p = 27$ c) $4^p = 256$

b) $p^4 = 625$ d) $p^3 = 0.125$

3. Write 16^3 in the form 2^n where n is an integer.

4. Write 81^3 as a single power of 3

5. Show that $32 \times 2 = 2^6$

Manipulating powers

6. Write the following as single powers of 3

a) 3×27

b) 27×9

c) 9×81

d) 243×81

e) 27^2

7. Write $(8^2)^3$ as a single power of 2

8. Here are some number cards.

16	4^3	32	8	$(2^3)^2$

a) Which two cards are equal?

b) Which two cards have a product equal to 2^9?

Answers

Manipulating powers

1. Write each number as a single power of 2

a) 8 2^3 c) 128 2^7 e) 2 $2^1 = 2$

b) 32 2^5 d) 512 2^9

2. For each equation find the value of p.

a) $3^p = 27$ $p = 3$ c) $4^p = 256$ $p = 4$

b) $p^4 = 625$ $p = 5$ d) $p^3 = 0.125$ $p = 0.5$

3. Write 16^3 in the form 2^n where n is an integer.

$(2^4)^3 = 2^{12}$

4. Write 81^3 as a single power of 3

$(3^4)^3 = 3^{12}$

5. Show that $32 \times 2 = 2^6$

$32 = 2^5$

$2^5 \times 2 = 2^6$

Manipulating powers

6. Write the following as single powers of 3

a) 3×27 3^4

b) 27×9 3^5

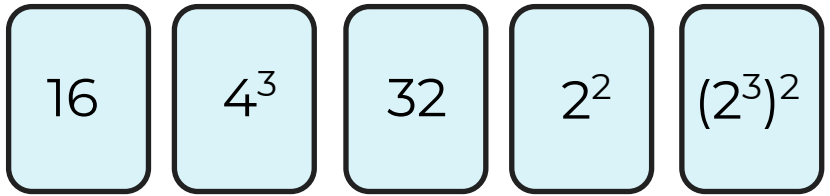
c) 9×81 3^6

d) 243×81 3^9

e) 27^2 3^6

7. Write $(8^2)^3$ as a single power of 2 2^{18}

8. Here are some number cards.



a) Which two cards are equal? 4^3 and $(2^3)^2$

b) Which two cards have a product equal to 2^9? 16 and 32