

INVESTIGATING THE ZEROth POWER

SOLUTIONS

TASK 1 Follow the powers of 2

2^0	2^1	2^2	2^3	2^4	2^5
1	2	4	8	16	32

Divide the term on the right by 2.

So what is the value of 2^0 ? **1**

TASK 2 Follow the powers of 3

3^0	3^1	3^2	3^3	3^4	3^5
1	3	9	27	81	243

According to your investigation, 3^0 must equal **1**.

TASK 3 Use the rule for dividing numbers with the same base

$y^3 \div y^3 = y^0$ **Subtract the indices and leave the base the same.**

But when you divide a number by itself the answer is always **1**.

Therefore, $y^3 \div y^3 = 1$

So if $y^3 \div y^3 = y^0$ and $y^3 \div y^3 = 1$, then **$y^0 = 1$** .

TASK 4 Write a conclusion

Any number to the power of zero equals 1.

Using algebra, you can write your conclusion as $y^0 = 1$.