

How many binary numbers?

Q. How many binary numbers can be represented using 6 bits?

Method to use is shown over the next 5 slides.

How many binary numbers?

1. Write out the largest binary number possible with that number of bits:

1 1 1 1 1 1

How many binary numbers?

2. Write out the binary column headings:

128	64	32	16	8	4	2	1
		1	1	1	1	1	1

How many binary numbers?

3. Look at the next column header - that's the answer:

128	<u>64</u>	32	16	8	4	2	1
		1	1	1	1	1	1

= 64

How many binary numbers?

This works because the **0** is always a number that can be represented.

1 1 1 1 1 1

So the range of values goes from 0 to one less than the next column heading.

That's a number of numbers equal to the largest possible number + 1 - because you have to include 0