

Write 10, 100, 1,000 etc. as powers of ten **H**

1 Complete the statements.

a) $2^3 = 2 \times 2 \times 2$

b) $5^6 = 5 \times 5 \times 5 \times 5 \times 5 \times 5$

c) $3^5 = 3 \times 3 \times 3 \times 3 \times 3$

d) $6 \times 6 = 6^2$

e) $9 \times 9 \times 9 \times 9 \times 9 \times 9 \times 9 = 9^7$

2 Write these numbers in the form 10^n

a) $100 = 10 \times 10 = 10^2$

b) $1,000 = 10 \times 10 \times 10 = 10^3$

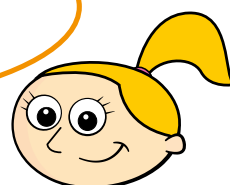
c) $100,000 = 10 \times 10 \times 10 \times 10 \times 10 = 10^5$

d) $10 = 10^1$

e) $100,000,000 = 10^8$

3 Eva writes 10^5 as 1000000

10^5 has a power of 5, so you need to write 10 and 5 extra zeros.



Is Eva correct? No

Explain your answer.

4 Write these powers of 10 as ordinary numbers.

a) $10^2 = 100$

c) $10^9 = 1,000,000,000$

b) $10^4 = 10,000$

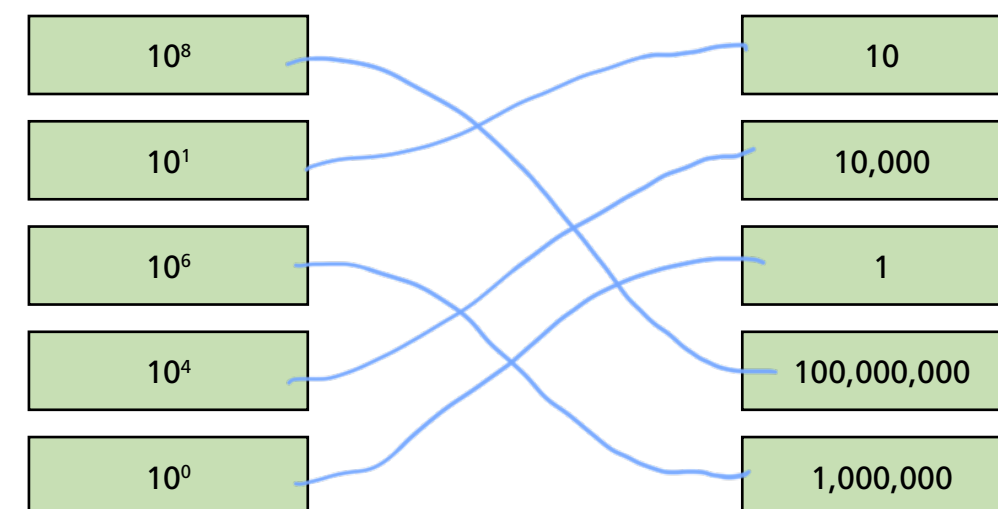
d) $10^{12} = 1,000,000,000,000$

Explain how you worked out the answers.

Did you use the same method for each question?

When working out powers of 10, the power indicates the number of zeros.

5 Match the powers of 10 to the numbers.



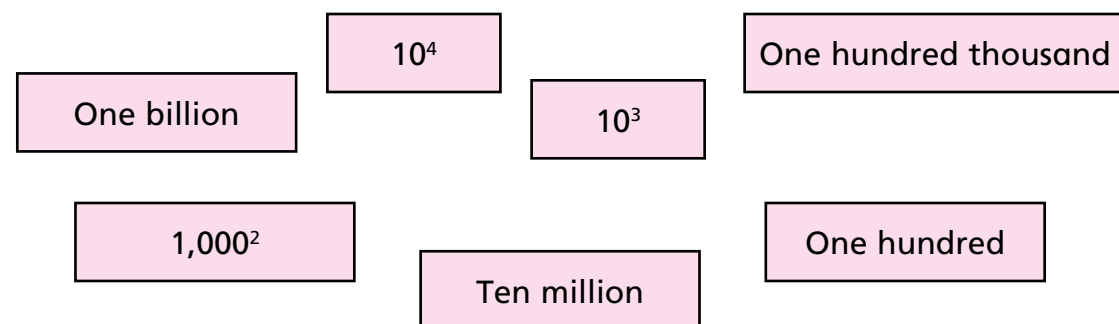
6 What is the value of the 1 in each number?

a) 10^7 Ten million

b) 10^3 One thousand

c) 10^9 One billion

- 7 Write these numbers in ascending order.



One hundred, 10^3 , 10^4 , One hundred thousand,
 $1,000^2$, Ten million, One billion

Talk about your method with a partner.



- 8 Here is the definition of a quadrillion.

quadrillion: number formed by writing
 1 followed by fifteen zeros

Write a quadrillion as a power of 10

10^{15}

- 9 A trillion can be written as 10^{12}

Write a trillion as an ordinary number. 1,000,000,000,000

- 10 Use the table to help you answer the questions.

quintillion	10^{18}
sextillion	10^{21}
septillion	10^{24}
octillion	10^{27}

a) How many times greater than a million is a quintillion? 10^{12}

b) How many times greater is an octillion than a septillion? 10^3

- 11 a) Write $10^3 \times 10^2$ as a single power of 10 10^5

b) Explain your method.

$10^3 = 1,000$ $10^2 = 100$ $1,000 \times 100 = 100,000$
 $100,000 = 10^5$

c) Tick the statements that are correct.

$10^3 \times 10^2 = 10^6$ ☐ $10^5 \times 10^3 = 10^8$ ☒ $10^7 \times 10 = 10^7$ ☐

$10 \times 10^4 = 10^5$ ☒ $10^5 \times 10^5 = 10^{25}$ ☐ $10^4 \times 10^2 \times 10^3 = 10^9$ ☒

d) The answer is 10^8

What is the question?

