Calculating with standard form

ANSWERS

1

Work out $(4 \times 10^2) \times (2 \times 10^6)$

Give your answer in standard form.

the numbers	the powers of 10
$4 \times 2 =$ 8	$10^2 \times 10^6 = 10^{8}$

put them back together. Is it standard form?

8 × 10^{8}

Answer 8×10^8

2

Work out $(3 \times 10^5) \times (3 \times 10^4)$

Give your answer in standard form.

the numbers	the powers of 10
$3 \times 3 =$ 9	$10^5 \times 10^4 = 10^{9}$

put them back together. Is it standard form?

9 × 10^{9}

Answer 9×10^9

3

Work out $(6 \times 10^8) \div (3 \times 10^2)$

Give your answer in standard form.

the numbers	the powers of 10
$6 \div 3 =$ 2	$10^8 \div 10^2 = 10^{6}$

put them back together. Is it standard form?

2 × 10^{6}

Answer 2×10^6

4

Work out $(9 \times 10^7) \div (3 \times 10^4)$

Give your answer in standard form.

$9 \div 3 =$ 3	$10^7 \div 10^4 = 10^{3}$

3 × 10^{3}

Answer 3×10^3

5

Work out $(5 \times 10^4) \times (8 \times 10^3)$

Give your answer in standard form.

$5 \times 8 =$ 40	$10^4 \times 10^3 = 10^{7}$

40 × 10^{7}

40 = 4 × 10, so 10^7 becomes 10^8

Answer 4×10^8

6

Work out $(8 \times 10^{-2}) \div (4 \times 10^3)$

Give your answer in standard form.

$8 \div 4 = 2$, $-2 - 3 = -5$

Answer 2×10^{-5}

7

A box holds 4×10^2 paper clips.

A shop has 3×10^3 boxes.

How many paper clips are there altogether? Give your answer in standard form.

12×10^5, $12 = 1.2 \times 10$

Answer 1.2×10^6

8

Leo works out $(4 \times 10^2) \times (2 \times 10^7)$ and gets 8×10^{14}. Explain what Leo has done wrong. Then write the right answer.

add the powers: 2 + 7 = 9

Answer 8×10^9

Calculating with standard form *further practice*

ANSWERS

9

Work out. Give your answer in standard form.

$$(6 \times 10^4) \times (5 \times 10^7)$$

30×10^{11}, $30 = 3 \times 10$

Answer 3×10^{12}

10

Work out. Give your answer in standard form.

$$(9 \times 10^2) \div (3 \times 10^5)$$

$9 \div 3 = 3$, $2 - 5 = -3$

Answer 3×10^{-3}

11

A printer prints 4×10^2 pages a minute. How many pages does it print in 2×10^3 minutes?
Give your answer in standard form.

$4 \times 2 = 8$, $2 + 3 = 5$

Answer 8×10^5 pages

12

Find the missing number. Give it in standard form.

$$(3 \times 10^5) \times \square = 9 \times 10^{11}$$

$9 \div 3 = 3$, $11 - 5 = 6$

Answer 3×10^6

13

Work out. Give your answer in standard form.

$$6 \times 10^3 + 4 \times 10^2$$

$6000 + 400 = 6400$

Answer 6.4×10^3

14

A hard drive holds 8×10^{12} bytes.
A film takes up 2×10^9 bytes.
How many films fit on the hard drive?
Give your answer as an ordinary number.

$8 \div 2 = 4$, $12 - 9 = 3$, 4×10^3

Answer 4000 films

15

A lake holds 7×10^5 litres of water.
In a hot summer, 4×10^4 litres dry up.
How many litres are left?
Give your answer in standard form.

$700\,000 - 40\,000 = 660\,000$

Answer 6.6×10^5 litres

16

Ruby works out $(5 \times 10^6) \times (4 \times 10^3)$ and gets 20×10^9. She says this is in standard form. Is Ruby right? Explain.

20 is not between 1 and 10

Answer No, it is 2×10^{10}