STANDARD FORM

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1.

Write 4500 in standard form

2.

Write 0.0072 in standard form

3.

Convert 6.3×10^4 to an ordinary number

4.

Convert 8.1×10^{-5} to an ordinary number

5.

Calculate $(3 \times 10^2) \times (4 \times 10^3)$

6.

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

7.

Calculate $(2.5 \times 10^4) + (3.5 \times 10^4)$

8.

Calculate $(7.2 \times 10^6) - (2.2 \times 10^6)$

9.

Simplify $(4 \times 10^3) \times (5 \times 10^{-2})$

10.

Simplify $(6 \times 10^8) \div (2 \times 10^{-3})$

11.

Calculate $(2.4 \times 10^5) + (3.6 \times 10^4)$

12.

Calculate $(8.5 \times 10^7) - (1.5 \times 10^6)$

13.

Calculate $(3.2 \times 10^{-4}) \times (4 \times 10^{-3})$

14.

Calculate $(9.6 \times 10^{-5}) \div (3.2 \times 10^{-2})$

15.

Simplify $(2.5 \times 10^6)^2$

16.

Simplify $\sqrt{(1.6 \times 10^8)}$

17.

Calculate $(4.8 \times 10^5) + (7.2 \times 10^4) - (2.6 \times 10^4)$

18.

Calculate $(3.6 \times 10^{-3}) \times (2.5 \times 10^4) \div (1.2 \times 10^2)$

19.

Simplify $(2.7 \times 10^9) \div (9 \times 10^4) \times (3 \times 10^{-2})$

20.

Calculate $(5.4 \times 10^{12}) \div (1.8 \times 10^8) + (2 \times 10^3)$

23.

Simplify $(1.44 \times 10^{10}) \div (2.4 \times 10^5) \times (5 \times 10^{-3})$

25.

Simplify $(7.29 \times 10^{16}) \div (2.7 \times 10^8)^2$

27.

Simplify $(6.25 \times 10^{12}) \times (1.6 \times 10^{-9}) \div (2 \times 10^2)$

29.

Simplify $(1.6 \times 10^{-4}) \times (6.25 \times 10^8) \div (2 \times 10^3)$

24.

Calculate $(3.2 \times 10^{-8}) \times (2.5 \times 10^{12}) \div (4 \times 10^4)$

26.

Calculate $(4.9 \times 10^{14}) \div (7 \times 10^8) - (3 \times 10^4)$

28.

Calculate $(8.1 \times 10^{-5}) + (2.7 \times 10^{-6}) - (1.5 \times 10^{-6})$

30.

Calculate $(2.56 \times 10^{18}) \div (6.4 \times 10^{12}) \times (5 \times 10^{-4})$

MASTER QUESTIONS

M1.

The distance from Earth to the Moon is approximately 3.84×10^8 metres. A spacecraft travels this distance in 3 days. Calculate its average speed in metres per second.

M2.

A bacterial culture doubles every hour. Starting with 5×10^6 bacteria, how many will there be after 8 hours?

M3.

Light travels at 3×10^8 m/s. How far does it travel in 2.5×10^{-5} seconds?

M4.

The mass of Earth is 5.97×10^{24} kg. If the mass of the Moon is 7.35×10^{22} kg, how many times heavier is Earth than the Moon?

M5.

A computer processes 4.5×10^9 instructions per second. How many instructions can it process in 3.6×10^3 seconds?

M6.

The population of a city is 8.4×10^6 people. If each person produces 2.5×10^{-2} tonnes of waste per day, what is the total daily waste production?

M7.

A star is 4.2×10^{16} metres from Earth. If light travels at 3×10^8 m/s, how long does its light take to reach us?

A company earns £3.6 × 10⁸ annually. If it has 1.2 × 10⁴ employees, what is the average earnings per employee?

A water droplet has a volume of 5×10^{-8} m³. How many droplets are needed to make 1 litre (1×10^{-3} m³) of water?

The area of a forest is 2.5×10^7 m². If each tree needs 6.25 m² of space, how many trees can the forest support?