



1.9 Standard form

Student name: _____ Score: _____

1. The distance from the Earth to the Moon is 3.8×10^5 km.

A spacecraft travels this distance four times.

Calculate the total distance travelled.

Give your answer in standard form.

.....Km [2]

2. Write 36 000 in standard form.

..... [1]

3. The population of India in 2011 was 1.21×10^9 .

The population of Pakistan in 2011 was 1.77×10^8 .

Calculate the total population of India and Pakistan in 2011.

Give your answer in standard form.

..... [2]

4. Find the value of ax^3 when $a = 1200$ and $x = 5$.

Give your answer in standard form.

..... [2]

5. Work out $(1.6 \times 10^3) \div (4 \times 10^5)$.

Give your answer in standard form.

..... [2]

6. Work out the following, giving your answers in standard form.

(a) $(4.6 \times 10^{-5}) + (3 \times 10^{-6})$

..... [2]

(b) $(4.6 \times 10^{-5}) \times (3 \times 10^{-6})$

..... [2]

7. (a) Write 0.0063 in standard form.

..... [1]

(b) $5.7 \times 10^9 + 2.4 \times 10^8 = k \times 10^9$

Find the value of k .

$k =$ [2]

8. Work out $\frac{8 \times 10^7}{5 \times 10^{-12}}$.

Give your answer in standard form.

..... [2]

9. Work out $\frac{4 \times 10^7}{8 \times 10^{22}}$.

Give your answer in standard form.

..... [2]

10. Work out, giving your answer in standard form.

(a) $(7.5 \times 10^{-4}) + (4 \times 10^{-6})$

..... [2]

(b) $(7.5 \times 10^{-4}) \times (4 \times 10^{-6})$

..... [2]

11. Write 375×10^{12} in standard form.

..... [1]

12. Calculate.

$$(3.24 \times 10^{-3}) \div (4 \times 10^4)$$

Give your answer in standard form.

..... [2]

13. (a) Write 0.000048 in standard form.

..... [1]

(b) Work out $(2 \times 10^8) \times (6 \times 10^7)$, giving your answer in standard form.

..... [2]

14. In standard form, $x = a \times 10^5$ and $y = b \times 10^7$ where $a < b$.

In standard form, $\frac{x}{y} = c \times 10^d$ where $1 \leq c < 10$.

(a) Find the value of d .

..... [1]

(b) Find c in terms of a and b .

..... [2]

15. Work out $(8 \times 10^{-4}) \times (2 \times 10^{-3})$, giving your answer in standard form.

..... [2]

16. Write 4.07×10^{-3} as an ordinary number.

..... [1]

17. Work out the following, giving each answer in standard form.

(a) $(6.4 \times 10^{-2}) - (1.6 \times 10^{-3})$

..... [2]

(b) $(6.4 \times 10^{-2}) \div (1.6 \times 10^{-3})$

..... [2]

18. Work out $(5.6 \times 10^{-7}) - (7.8 \times 10^{-8})$.
Give your answer in standard form.

..... [2]



19. Work out $(5.2 \times 10^{18}) - (2.4 \times 10^{17})$.
Give your answer in standard form.

..... [2]

20. Work out $1.1 \times 10^{30} + 1.1 \times 10^{29}$, giving your answer in standard form.

..... [2]

21. Work out the following.
Give each answer in standard form.

(a) $(1 \times 10^1) + (2 \times 10^{-2})$

..... [2]

(b) $(1 \times 10^1) \div (2 \times 10^{-2})$

..... [2]

22. Work out the following, giving each answer in standard form.

(a) $(4.3 \times 10^4) \times (3 \times 10^{-4})$

..... [2]

(b) $(6 \times 10^{-2}) + (3 \times 10^{-3})$

..... [2]

23. $c = 4 \times 10^7$ $d = 5.8 \times 10^6$

Work out, giving your answers in standard form,

(a) c^2 ,

..... [2]

(b) $c - d$.

..... [2]

24. Write 0.000 003 06 in standard form.

..... [1]

25. Work out, giving your answer in standard form.

$$(6.3 \times 10^4) + (5.6 \times 10^5)$$

..... [2]

26. Work out $(3.2 \times 10^{20}) + (2.3 \times 10^{21})$, giving your answer in standard form.

..... [2]

27. Write each number in standard form.

(a) 58 000

..... [1]

(b) 0.008 09

..... [1]

28. Write each number in standard form.

(a) 28 010

..... [1]

(b) 0.100 209

..... [1]

29. (a) Write 0.000 058 6 in standard form.

..... [1]

(b) $(2 \times 10^a) \div (8 \times 10^b) = k \times 10^n$ where $1 \leq k < 10$.

(i) Find the value of k .

$k =$ [1]

(ii) Write an expression for n in terms of a and b .

$n =$ [1]

30. (a) Work out $(1.5 \times 10^1) \times (7 \times 10^{-3})$.
Give your answer in standard form.

..... [2]

(b) Work out $(6.5 \times 10^{-2}) + (7.8 \times 10^{-3})$.
Give your answer in standard form.

31. Simplify $(3 \times 10^{85}) \times (7 \times 10^{15})$.

Give your answer in standard form.

..... [2]

