EXAM PAPERS PRACTICE

Standard Form

Model Answers

Question 1

Calculate, giving your answers in standard form,

(a) $2 \times (5.5 \times 10^4)$, [2]

Answer:

1.1×10^5

(b) $(5.5 \times 10^4) - (5 \times 10^4)$.

Answer:

5×10^3

Question 2

Write the answer to the following calculations in standard form.

(a) $600 \div 8000$ [2]

Answer:

7.5×10^{-2}

(b) $10^8 - 7 \times 10^6$ [2]

Answer:

9.3×10^7

Question 3

Calculate $(4.3 \times 10^8) + (2.5 \times 10^7)$.

Give your answer in standard form. [2]

Answer:

4.55×10^8

Question 4

(a) Write 0.0605 in standard form. [1]

Answer:

6.05×10^{-2}

(b) Calculate $0.1 \times 5.1 \times 10^4$, giving your answer in standard form. [1] [2]

Answer:

5.1×10^3

Question 5

Work out $2(3 \times 10^{8} - 4 \times 10^{6})$, giving your answer in standard form. [2]

Answer:

5.92×10^{8}

Question 6

Solve the equation $4x + 6 \times 10^{3} = 8 \times 10^{4}$.

Give your answer in standard form. [3]

Answer:

1.85×10^{4}

Question 7

(a) There are 10^9 nanoseconds in 1 second.
Find the number of nanoseconds in 5 minutes, giving your answer in standard form.

Answer:

3×10^{11}

[2]

(b) Solve the equation $5(x + 3 \times 10^6) = 4 \times 10^7$.

Answer:

5 000 000 or 5×10^6 or 5 million

[2]

Question 8

Write 5.17×10^{-3} as an ordinary number. [1]

Answer:

0.00517

Question 9

Work out, giving your answer in standard form. [2]

$$1.2 \times 10^{40} + 1.2 \times 10^{41}$$

Answer:

1.32×10^{41}

Question 10

(a) Write 14 835 correct to the nearest thousand. [1]

Answer:

15000

(b) Write your answer to **part (a)** in standard form. [1]

Answer:

1.5×10^4

Question 11

Write in standard form.

(a) 2 470 000

[1]

Answer:

2.47×10^{6}

(b) 0.0079

[1]

Answer:

7.9×10^{-3}

Question 12

Write 1.27×10^{-3} as an ordinary number.

[1]

Answer:

[0].00127

Question 13

Write 0.000 057 4 in standard form.

[1]

Answer:

5.74×10^{-5}

Question 14

Write 1.7×10^{-4} as an ordinary number.

[1]

Answer:

[0].00017

Question 15

Write 270000 in standard form.

[1]

Answer:

2.7×10^5

Question 16

Write 53400000 in standard form.

[1]

Answer:

5.34×10^7

Question 17

(a) Write 2.8×10^2 as an ordinary number. [1]

Answer:

280

(b) Work out $2.5 \times 10^8 \times 2 \times 10^{-2}$.
Give your answer in standard form. [2]

Answer:

5×10^6

Question 18

Work out $4 \times 10^{-5} \times 6 \times 10^{12}$.
Give your answer in standard form. [2]

Answer:

2.4×10^8

Question 19

$p = 4 \times 10^5 \qquad q = 5 \times 10^4$

Find, giving your answer in standard form,

(a) pq, [2]

Answer:

$\mathbf{2 \times 10^{10}}$

(b) $\frac{q}{p}$. [2]

Answer:

$\mathbf{1.25 \times 10^{-1}}$

Question 20

The price of a ticket for a football match is \$124. [1]

(a) Calculate the amount received when 76 500 tickets are sold.

Answer:

9486000

(b) Write your answer to **part (a)** in standard form. [1]

Answer:

$\mathbf{9.486 \times 10^6}$

Question 21

A hummingbird beats its wings 24 times per second.

(a) Calculate the number of times the hummingbird beats its wings in one hour. [1]

Answer:

86400

(b) Write your answer to part (a) in standard form. [1]

Answer:

8.64×10^4

Question 22

(a) Write 16 460 000 in standard form. [1]

Answer:

1.646×10^7

(b) Calculate $7.85 \div (2.366 \times 10^{2})$, giving your answer in standard form. [2]

Answer:

3.32×10^{-2}

Question 23

Work out $\dfrac{240^2}{5\times10^6}$.

Give your answer in standard form. [2]

Answer:

1.15(2) × 10^{-2}

Question 24

Calculate the value of $5(6\times 10^3 + 400)$, giving your answer in standard form. [2]

Answer:

3.2(0) × 10^4

Question 25

Change 64 square metres into square millimetres.
Give your answer in standard form. [2]

Answer:

6.4 × 10^7

Question 26

$\sqrt{23}$ 48% 4.80 $\frac{53}{11}$ [2]

Write the numbers in order of size with the **largest** first.

Answer:

$\frac{53}{11}$ > 4.80 > 23 > 48%

Question 27

1 second = 10^6 microseconds. [2]

Change 3×10^{13} microseconds into minutes. Give your answer in standard form.

Answer:

$5(.00) \times 10^5$

Question 28

A light on a computer comes on for 26 700 microseconds.

One microsecond is 10^{-6} seconds.

Work out the length of time, in seconds, that the light is on

(a) in standard form, [1]

Answer:

2.67×10^{-2}

(b) as a decimal. [1]

Answer:

0.0267(00…)

Question 29

Use the formula

$$P = \frac{V^2}{R}$$

to calculate the value of P when $V = 6 \times 10^6$ and $R = 7.2 \times 10^8$. [2]

Answer:

5 x 10^4 or 50000

Question 30

The planet Neptune is 4496000 000 kilometres from the Sun.
Write this distance in standard form. [1]

Answer:

4.496 x 10 ^{9}

Question 31

The mass of the Earth is $\frac{1}{95}$ of the mass of the planet Saturn. [3]

The mass of the Earth is 5.97×10^{24} kilograms.
Calculate the mass of the planet Saturn, giving your answer in standard form, correct to 2 significant figures.

Answer:

5.7 x 10 ^{26}

Question 32

A block of cheese, of mass 8 kilograms, is cut by a machine into 500 equal slices.

(a) Calculate the mass of one slice of cheese in kilograms.

Answer:

0.016

[1]

(b) Write your answer to **part (a)** in standard form.

Answer:

1.6×10^{-2}

[1]