GCSE · Edexcel · Maths

56 mins 27 questions

Exam Questions

# Powers, Roots & Standard Form

Powers & Roots / Laws of Indices / Converting to & from Standard Form / Operations with Standard Form

| | |
|---|---|
| Easy (12 questions) | /15 |
| Medium (10 questions) | /30 |
| Hard (5 questions) | /11 |
| **Total Marks** | **/56** |

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# Easy Questions

**1** Write down the value of $19^0$.

**(1 mark)**

**2** The cost of building a ship was $153000000.

Write 153000000 in standard form.

**(1 mark)**

**3** Write the number 40 in standard form.

**(1 mark)**

**4** Write 2020 in standard form.

**(1 mark)**

**5** Write 15060 in standard form.

**(1 mark)**

**6 (a)** Write 72000 in standard form.

**(1 mark)**

**(b)** Write 0.0018 in standard form.

**(1 mark)**

**7** Write down the value of $25^0$.

**(1 mark)**

**8 (a)** Write 640000 in standard form.

**(1 mark)**

**(b)** Write 0.0006 in standard form.

**(1 mark)**

**9** Write 0.00527 in standard form.

**(1 mark)**

**10** Write 2760000 in standard form.

**(1 mark)**

**11** Write 0.0000523 in standard form.

**(1 mark)**

**12 (a)** Write 0.000347 in standard form.

**(1 mark)**

**(b)** Write $6.7201 \times 10^3$ as an ordinary number.

**(1 mark)**

# Medium Questions

**1** i) Write $9.314 \times 10^5$ as an ordinary number.

[1]

ii) Calculate $(4.1 \times 10^{-3}) \times (8.9 \times 10^7)$
Give your answer in standard form.

[2]

**(3 marks)**

**2** Find the value of

i) $3^0$,

[1]

ii) $5^{-2}$.

[1]

**(3 marks)**

**3 (a)** Write the number 0.0605 in standard form.

**(2 marks)**

**(b)** Calculate $(1.63 \times 10^{12}) \times (2.47 \times 10^{-1})$

Give your answer in standard form.

**(1 mark)**

**4 (a)** Write 45000 in standard form.

**(1 mark)**

**(b)** Write $2.06 \times 10^{-2}$ as an ordinary number.

[1]

**(1 mark)**

**5** i) Write down the reciprocal of 15.

[1]

ii) Write down the value of $15^0$.

[1]

iii) Write 0.015 in standard form.

[1]

**(3 marks)**

**6 (a)** Find the value of $6^0 + 6^2$

**(2 marks)**

**(b)** Find the value of $5^{-3}$

**(2 marks)**

**7** i) Write $4.2 \times 10^{-3}$ as an ordinary number.

[1]

ii) Calculate $(8.1 \times 10^3) + (7.9 \times 10^4)$ Give your answer in standard form.

[2]

**(3 marks)**

**8** Find the value of

i) $\sqrt[3]{512}$

[1]

ii) $\frac{6^8}{2^6}$

[1]

iii) $7^0$

[1]

**(3 marks)**

**9** Find the value of $\left(\sqrt{25}\right)^2$.

**(1 mark)**

**10 (a)** (i) Write $3^4 \times 3^3$ in the form $3^n$

(ii) Write down the value of $3^{-1}$

**(2 marks)**

**(b)** Write $\frac{7^8 \times 7^4}{7^3}$ in the form $7^n$ where $n$ is an integer

**(3 marks)**

# Hard Questions

**1** i) Write $4.81 \times 10^{-3}$ as an ordinary number.

[1]

ii) Write 75000 in standard form.

[1]

iii) Calculate $\dfrac{6.3 \times 10^{2}}{7 \times 10^{-3}}$

Write your answer in standard form.

[2]

**(4 marks)**

**2** Find the value of $x$ when $5^{x} \times 5^{3} = 5^{12}$

$x =$ .....

**(1 mark)**

**3** The average distance from Earth to Mars is $2.25 \times 10^{8}$ km. A space ship travels from Earth to Mars at an average speed of $5.8 \times 10^{4}$ km/h.

Find how long, in hours, the journey takes.

..... hours

**(2 marks)**

**4** Find the value of $p$ when $5^p \div 5^8 = 5^{13}$.

$p =$ .....

**(1 mark)**

**5** Mercury is 58 000 000 km from the sun.

Jupiter is $7.22 \times 10^8$ km further from the sun than Mercury.

Earth is $1.5 \times 10^8$ km from the sun.

Find how many times further from the sun Jupiter is, than Earth.

**(3 marks)**