

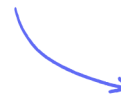
Calculator Questions

Powers, Roots & Standard Form

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

Easy (3 questions)	/3
Medium (8 questions)	/18
Hard (4 questions)	/16
Total Marks	/37

Scan here to return to the course
or visit [savemyexams.com](https://www.savemyexams.com)



Easy Questions

1 Calculate $0.125^{-\frac{2}{3}}$.

(1 mark)

2 Work out.

$$\left(\frac{125}{27}\right)^{-\frac{2}{3}}$$

(1 mark)

3 Find the value of $\left(\frac{1}{81}\right)^{-\frac{3}{4}}$.

(1 mark)

Medium Questions

- 1 Write 2^{-4} as a decimal.

(1 mark)

- 2 Calculate $(3 \times 10^{-3})^3$.

Give your answer in standard form.

(1 mark)

- 3 Calculate the value of $(2.3 \times 10^{-3}) + (6.8 \times 10^{-4})$.

Give your answer in standard form.

(1 mark)

- 4 Mohsin has 720 apple trees on his farm.

Each apple tree produces 16 boxes of apples each year. One box contains 18 kg of apples.

Calculate the total mass of apples produced by the 720 trees in one year. Give your answer in standard form.

..... kg

(3 marks)

- 5 (a) The table shows some information about eight planets.

Planet	Distance from Earth (km)	Mass (kg)
Earth	0	5.97×10^{24}
Jupiter	6.29×10^8	1.898×10^{27}
Mars	7.83×10^7	6.42×10^{23}
Mercury	9.17×10^7	3.302×10^{23}
Neptune	4.35×10^9	1.024×10^{26}
Saturn	1.28×10^9	5.68×10^{26}
Uranus	2.72×10^9	8.683×10^{25}
Venus	4.14×10^7	4.869×10^{24}

Write down the name of the planet with the greatest mass.

(1 mark)

(b) Find the difference between the mass of Venus and the mass of Mercury.

(1 mark)

(c) Nishat says that Neptune is over a hundred times further away from Earth than Venus is.

Is Nishat right?

You must show how you get your answer.

(2 marks)

6 Work out $(13.8 \times 10^7) \times (5.4 \times 10^{-12})$

Give your answer as an ordinary number.

(2 marks)

7 (a) Write 640 000 000 in standard form.

(1 mark)

(b) Work out $(3 \times 10^7) \div (6 \times 10^4)$

Give your answer in standard form.

(2 marks)

8 (a) Work out the value of 25^{-3}

(1 mark)

(b) Work out the value of 350^3
Give your answer in standard form.

(2 marks)

Hard Questions

- 1 (a)** The table shows the surface area of some countries and their estimated population in 2017.

Country	Surface area (km ²)	Estimated population in 2017
Brunei	5.77×10^3	433 100
China	9.60×10^6	1 388 000 000
France	6.41×10^5	67 000 000
Maldives	3.00×10^2	374 600

Find the total surface area of Brunei and the Maldives.

..... km²

(1 mark)

- (b)** The ratio surface area of the Maldives : surface area of China can be written in the form $1 : n$.

Find the value of n .

$n =$

(2 marks)

(c) Find the surface area of France as a percentage of the surface area of China.

..... %

(2 marks)

(d) Find the population density of the Maldives.

[Population density = population $\div$ surface area]

.....people/km²

(2 marks)

2 Find the exact value of $8^{\frac{2}{3}} \times 49^{-\frac{1}{2}}$.

(2 marks)

3 $p^2 = \frac{x - y}{xy}$

$$x = 8.5 \times 10^9$$

$$y = 4 \times 10^8$$

Find the value of p .

Give your answer in standard form correct to 2 significant figures.

(3 marks)

4 (a) $T = \sqrt{\frac{w}{d^3}}$
 $w = 5.6 \times 10^{-5}$
 $d = 1.4 \times 10^{-4}$

Work out the value of T .

Give your answer in standard form correct to 3 significant figures.

(2 marks)

(b) w is increased by 10% d is increased by 5%

Lottie says,

"The value of T will increase because both w and d are increased."

Lottie is wrong.

Explain why.

(2 marks)