

SQA Past paper questions

2024 - Paper 2 - Question 2

An ant colony occupies an area of 250 hectares.

There is an average of 1.22×10^6 ants per hectare.



Calculate the number of ants in the colony.

Give your answer in scientific notation.

2

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2024 - Paper 1 - Question 13

Expand and simplify fully $x\left(x^{\frac{1}{2}} + x^{-1}\right)$. 2

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2023 - Paper 1 - Question 12

Simplify $\frac{5c^{-2}}{c^3 \times c^4}$.

Give your answer with a **positive** power. 3

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2023 - Paper 2 - Question 2

The mass of a helium atom is 6.64×10^{-24} grams.

A flask contains 300 grams of helium.

Calculate the number of helium atoms in this flask.

Give your answer in scientific notation, correct to 3 significant figures. 3

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2022 - Paper 1 - Question 11

Simplify $(m^{-2})^4 \times m^{-5}$.

Give your answer with a positive power. 3

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2021 - Paper 1 - Question 15

Evaluate $16^{\frac{3}{2}}$. 2

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2021 - Paper 2 - Question 2

Light travels at 3×10^8 metres per second.

A star is 4.2×10^{17} metres away from Earth.

Calculate the number of seconds it takes for light from this star to reach Earth.

Give your answer in scientific notation. 2



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2019 - Paper 2 - Question 4

A sesame seed weighs 3.6×10^{-6} kilograms.

The weight of a poppy seed is 8% of the weight of a sesame seed.

Calculate the weight of a poppy seed in kilograms.

Give your answer in scientific notation. 2

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2019 - Paper 2 - Question 16

Simplify $\frac{a^4 \times 3a}{\sqrt{a}}$. 3

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2018 - Paper 1 - Question 15

Remove the brackets and simplify $\left(\frac{2}{3}p^4\right)^2$.

2

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2017 - Paper 2 - Question 12

Express $\frac{1}{\sqrt[3]{x}}$ in the form x^n . 2

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2016 - Paper 2 - Question 10

Simplify $(n^2)^3 \times n^{-10}$.
Give your answer with a positive power. 3

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2016 - Paper 2 - Question 2

A pollen sample weighs 12 grams
and contains 1.5×10^9 pollen grains.



Calculate the weight of one pollen grain in grams.
Give your answer in scientific notation. 2

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2015 - Paper 1 - Question 14

Evaluate $8^{\frac{5}{3}}$. 2

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2014 - Paper 2 - Question 8

Simplify $\frac{n^5 \times 10n}{2n^2}$. 3

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Specimen - Paper 2 - Question 2

There are 3×10^5 platelets per millilitre of blood.

On average, a person has 5.5 litres of blood.

On average, how many platelets does a person have in their blood?

Give your answer in scientific notation. 2

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Specimen - Paper 1 - Question 7

(a) Multiply out the brackets and simplify:

$$x^{\frac{1}{2}} \left(x^{-\frac{3}{2}} + x^{-\frac{1}{2}} \right).$$
2

(b) Find the exact value of this expression when $x = 6$. 1

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2014 - Paper 2 - Question 8

Simplify $\frac{8p^6}{2p^3 \times p}$. 3

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2013 - Paper 2 - Question 9

Simplify $\frac{x^6}{y^2} \times \frac{y^3}{x^3}$. 2

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2012 - Paper 2 - Question 11

Simplify, expressing your answer with positive indices.

$$(x^2 y^4) \div (x^{-3} y^6) \quad 2$$

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2011 - Paper 1 - Question 6

Evaluate $9^{\frac{3}{2}}$. 2

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2010 - Paper 1 - Question 7

Express

$$p^3(p^2 - p^{-3})$$

in its simplest form. 2

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2009 - Paper 2 - Question 12

Simplify $\frac{ab^6}{a^3b^2}$. 2

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2008 - Paper 1 - Question 7

Simplify

$$\frac{m^5}{m^3}.$$
 1

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2007 - Paper 2 - Question 12

Simplify the expression below, giving your answer with a positive power.

$$m^5 \times m^{-8}$$
 2

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2006 - Paper 1 - Question 9

Evaluate

$$16^{\frac{3}{4}}.$$
 2

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2005 - Paper 1 - Question 5

Simplify

$$k^8 \times (k^2)^{-3},$$
 2

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2004 - Paper 2 - Question 11

Simplify $\frac{3a^5 \times 2a}{a^2}$ **3**

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2003 - Paper 2 - Question 11

Express

$$a^{\frac{2}{3}}(a^{\frac{2}{3}} - a^{-\frac{2}{3}})$$

in its simplest form. 2Click [here](#) for video solution. 

2002 - Paper 2 - Question 11

Simplify

$$6x^{\frac{3}{2}} \div 2x^{\frac{1}{2}}.$$
 2

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2001 - Paper 2 - Question 9

Express $a^2(2a^{-\frac{1}{2}} + a)$ in its simplest form. 2Click [here](#) for video solution. 

2000 - Paper 1 - Question 8

Express $\frac{a^{\frac{1}{2}} \times a^{\frac{5}{2}}}{a^2}$ in its simplest form. 2Click [here](#) for video solution. 