

## Powers and Roots Past Paper Questions



### Non-Calculator

#### Q1.

(a) Write down the square of 8

.....

(1)

(b) Write down the value of  $10^3$

.....

(1)

(c) Estimate the value of  $\sqrt{20}$

.....

(1)

**(Total for Question is 3 marks)**

#### Q2.

(a) Write down the value of  $7^2$

.....

(1)

(b) Write down the value of  $\sqrt{25}$

.....

(1)

(c) Write down the value of  $2^3$

.....

(1)

**(Total for Question is 3 marks)**

#### Q3.

Work out  $(-3)^3$

.....

**(Total for question is 1 mark)**



**Q4.**

Find the value of  $5^4$

.....

**(Total for question = 1 mark)**

**Q5.**

The same number is missing from each box.

$$\square \times \square \times \square = 343$$

(a) Find the missing number.

.....

**(1)**

(b) Work out  $4^4$

.....

**(1)**

**(Total for question is 2 marks)**

**Q6.**

(a) Write down the value of  $\sqrt{81}$

.....

**(1)**

(b) Work out the value of  $5^2 + 2^3$

.....

**(2)**

**(Total for Question is 3 marks)**



**Q7.**

(a) Write down the value of  $\sqrt{49}$

.....

(1)

(b) Write down the cube of 3

.....

(1)

**(Total for Question is 2 marks)**

**Q8.**

Here is a list of numbers.

10      16      21      28      43

One of these numbers is a power of 2

Which number?

.....

**(Total for question = 1 mark)**

**Q9.**

Here are two numbers.

29    37

Nadia says both of these numbers can be written as the **sum** of two square numbers.

Is Nadia correct?

You must show how you get your answer.

**(Total for question is 3 marks)**



**Q10.**

Work out the value of  $2^4$

.....

**(Total for question = 1 mark)**

**Q11.**

Write down a square number that is also an odd number.

.....

**(Total for question = 1 mark)**

**Q12.**

Work out the cube root of 64

.....

**(Total for question = 1 mark)**

**Q13.**

(a) Write down the value of  $\sqrt{64}$

.....

**(1)**

(b) Work out the value of  $5^3$

.....

**(1)**

**(Total for question = 2 marks)**



**Q14.**

Here is a list of numbers.

4 6 9 10 15 27 30 40

From the list, write down all the numbers that are powers of 3

**(Total for question = 1 mark)**

**Q15.**

Work out  $2.5^2$

.....

**(Total for question = 1 mark)**

**Q16.**

Here is a list of numbers.

3 4 9 18 27 30 36

From the numbers in the list, write down a cube number.

.....

**(Total for question = 1 mark)**

**Q17.**

Work out  $3^2$

.....

**(Total for question = 1 mark)**

**Q18.**



Liz's age is a square number.  
Howard's age is a cube number.  
Howard is 2 years older than Liz.  
How old are Liz and Howard?

Liz .....

Howard .....

**(Total for question = 2 marks)**

**Q19.**

Here is a list of five numbers.

14    15    16    17    18

From the list,

(i) write down the prime number,

.....

(ii) write down the square number.

.....

**(Total for question = 2 marks)**

Calculator



**Q20.**

(a) Find the value of  $\sqrt{7.29}$

.....  
(1)

(b) Find the value of  $21^3$

.....  
(1)

**(Total for question = 2 marks)**

**Q21.**

Write down an even cube number.

.....  
**(Total for question = 1 mark)**

**Q22.**

Work out  $1.7^3$

.....  
**(Total for question = 1 mark)**

**Q23.**

Find the value of  $6^5$

.....  
**(Total for question = 1 mark)**

**Q24.**

(a) Work out  $6.7^2$



.....  
(b) Find  $\sqrt{13.69}$

.....  
(1)

(Total for Question is 2 marks)

**Q25.**

(a) Work out  $\sqrt{44.89}$

You must give your answer as a decimal.

.....  
(1)

(b) Work out  $\frac{1}{2.5^3}$

You must give your answer as a decimal.

.....  
(2)

(Total for question = 3 marks)

**Q26.**

(a) Work out  $7.5^2$

.....  
(1)

(b) Work out  $\sqrt{20 - 9.76}$

.....  
(1)

(Total for question = 2 marks)

**Q27.**

Find  $\sqrt{1.69}$





.....  
(Total for question = 1 mark)

**Q28.**

Find the value of  $\sqrt{17.64}$

.....  
(Total for question = 1 mark)

**Q29.**

Find  $\sqrt{1.44}$

.....  
(Total for question = 1 mark)