Name	Class

MATHS TEACHER HUB
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Powers and roots
(9 – 1) Topic booklet
Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions
•Use **black** ink or ball-point pen.
•**Fill in the boxes** at the top of this page with your name, centre number and candidate number.
•Answer **all** questions.
•Answer the questions in the spaces provided
 – *there may be more space than you need*.
•Diagrams are NOT accurately drawn, unless otherwise indicated.
•You must **show all your working out.**
•If the question is a **1F** question you are not allowed to use a calculator.
•If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information
•The marks for **each** question are shown in brackets
 – *use this as a guide as to how much time to spend on each question*.

Advice
•Read each question carefully before you start to answer it.
•Keep an eye on the time.
•Try to answer every question.
•Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

1   Work out the value of 2^4

....

June 2017 – Paper 1F   **(Total for Question 1 is 1 mark)**

2   Work out 3^2

....

November 2022 – 1F   **(Total for Question 2 is 1 mark)**

3   Find $\sqrt{1.44}$

....

November 2018 – Paper 3F   **(Total for Question 3 is 1 mark)**

3   Work out the value of 3^5

....

May 2018 – Paper 2F   **(Total for Question 3 is 1 mark)**

3 Here is a list of numbers

$$4 \quad 7 \quad 9 \quad 25 \quad 27 \quad 31 \quad 64$$

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

....

(Total for Question 3 is 1 mark)

4 Work out 2.5^2

....

(Total for Question 4 is 1 mark)

4 Here is a list of numbers.

$$4 \quad 6 \quad 9 \quad 10 \quad 15 \quad 27 \quad 30 \quad 40$$

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

....

(Total for Question 4 is 1 mark)

4 Find the value of 5^4

....

(Total for Question 4 is 1 mark)

4 Work out the cube root of 64

....

(Total for Question 4 is 1 mark)

4 Find the value of $\sqrt{17.64}$

....

(Total for Question 4 is 1 mark)

5 Write down the value of 7^2

....

(Total for Question 5 is 1 mark)

5 Work out 2^3

....

(1)

(Total for Question 5 is 1 mark)

5 Find the square root of 64

....

(Total for Question 5 is 1 mark)

5 Here is a list of numbers.

    3   4   9   18   27   30   36

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

....

May 2020 – Paper 2F   **(Total for Question 5 is 1 mark)**

5 Find the value of 6^5

....

November 2019 – Paper 2F   **(Total for Question 5 is 1 mark)**

5 Find $\sqrt{1.69}$

....

June 2022 – Paper 3F   **(Total for Question 5 is 1 mark)**

6 Here is a list of whole numbers from 21 to 30

     21   22   23   24   25   26   27   28   29   30

(a) From the list, write down a square number.

....

(1)

(b) From the list, write down a multiple of 8

....

(1)

          (Total for Question 6 is 2 marks)

8 Here is a list of numbers.

     21   22   23   24   25   26   27   28   29

(a) From the numbers in the list, write down a square number.

....

(1)

          (Total for Question 8 is 1 mark)

9 Nidah writes down two different prime numbers.

She adds together her two numbers.
Her answer is a square number less than 30

Find two prime numbers that Nidah could have written down.

.... , ...

(Total for Question 9 is 2 marks)

11   Work out 4^4

....

(1)

(Total for Question 11 is 1 mark)

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

....

(1)

(b) Work out the value of 5^3

....

(1)

(Total for Question 15 is 2 marks)

22 Write down the value of 2^{-3}

....

(1)

(Total for Question 22 is 1 mark)