

Powers and Roots

discia.org · 10 questions · 22 marks

NAME _____

DATE _____

1 (a) Find the value of 10^2

 EITHER PAPER 2 MARKS

(b) Find the value of 9^3

2 (a) Write $3 \times 3 \times 3 \times 3$ in index form.

 EITHER PAPER 3 MARKS

(b) Find the value of 2^3

3 The square root of x is 3.

 EITHER PAPER 1 MARK

Work out the value of x .

4 Circle the value of $4^3 + 7^2$

 EITHER PAPER 1 MARK

113 121 599 3136

5 (a) Work out the value of $\sqrt{196}$

 EITHER PAPER 3 MARKS

(b) Work out the value of $\sqrt[3]{216}$

(c) Work out the value of $\sqrt{196} \times \sqrt[3]{216}$

6 Show that 661 is the sum of a power of 5 and a square number.

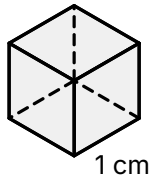
 EITHER PAPER 2 MARKS

- 7 Show that exactly sixty-eight of the 4-digit numbers are square numbers.

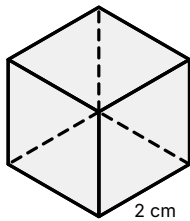
EITHER PAPER 3 MARKS

- 8 The diagrams show the first two cube numbers, 1 and 8.

EITHER PAPER 3 MARKS



1st cube number: 1



2nd cube number: 8

Show that the sixth cube number is the sum of three different primes.

- 9 Work out the value of $\left(2\frac{1}{4}\right)^2$

EITHER PAPER 2 MARKS

Give your answer as a mixed number.

(a) Here are four numbers.

99	999	1,331	8,100
----	-----	-------	-------

Circle
the
number
that
is a
square
number.

(b) Here are four more numbers.

9	74	147	162
---	----	-----	-----

Circle
the
number
that
is
half
of a
square
number.

1	(a) 100 (b) 729	2	(a) 3^4 (b) 8
3	9	4	113
5	(a) 14 (b) 6 (c) 84	6	$661 = 625 + 36 = 5^4 + 6^2$
7	$31^2 = 961$ is too small and $100^2 = 10000$ is too big, so the bases run from 32 to 99: 68 numbers	8	e.g. $2 + 17 + 197 = 216$, which is 6^3 , and 2, 17 and 197 are all prime and all different (any other valid triple is also correct)
9	$5\frac{1}{16}$	10	(a) 8100 (b) 162