

11+ Maths Practice Paper

Year 6 · Advanced

Lesson 1.7: Special number families

Read this with your child:

1. This paper has **27 questions** in two parts. Work through them in order. The questions get harder as you go.
2. **Part 1** is multiple choice. Choose **one** answer, A, B, C, D or E, and mark it on the separate answer sheet by drawing a firm line through the box next to its letter. If you change your mind, rub the line out completely and mark your new answer.
3. **Part 2** asks you to write your answer. Write it in the boxes on the answer sheet, **one digit in each box**, starting from the left.
4. If a question is hard, leave it and come back to it at the end.
5. You may use rough paper for working out. You may **not** use a calculator.
6. Suggested time: **35 minutes**.

The answer sheet is after the questions. The answers, with a short explanation of each, are at the back for a parent to mark with.

These are original practice questions written by Elite Learners in the style of 11+ entrance tests. They are not produced by, or connected with, GL Assessment or Cambridge University Press & Assessment (CEM).

Example

What is 4^2 ?

A 8

B 16

C 42

D 12

E 64

Answer: B $4^2 = 4 \times 4 = 16$. (64 is 4^3 .)

The answer, B, has already been marked on your answer sheet.

Now turn over and start Part 1.

Part 1: Multiple choice

1

What is 13^2 ?

- A 26 B 139 C 156 D 196 E 169

2

What is the square root of 196?

- A 98 B 16 C 13 D 14 E 49

3

What is the cube root of 125?

- A 25 B 11 C 5 D 15 E 3

4

What is 15^2 ?

- A 30 B 215 C 225 D 150 E 255

5

Which of these is **not** a square number?

- A 121 B 186 C 144 D 169 E 196

6

What is $14^2 - 13^2$?

- A 1 B 2 C 13 D 27 E 14

7

Which of these is a cube number **and** an odd number?

- A 8 B 27 C 64 D 49 E 81

8

The square root of 150 is between which two whole numbers?

- A 11 and 12 B 13 and 14 C 75 and 76 D 14 and 15 E 12 and 13

9

What is $5^3 - 4^3$?

- A 1 B 9 C 21 D 61 E 189
-

10

What is the square root of 64 add the cube root of 64?

- A 12 B 16 C 64 D 10 E 32
-

11

Which of these is a square number?

- A 164 B 169 C 171 D 175 E 178
-

12

Two square numbers add up to 74. One of them is 25. What is the other?

- A 36 B 64 C 49 D 51 E 81
-

13

Which of these is equal to 4^3 ?

- A 4×3 B 6^2 C 8^2 D $4 + 4 + 4$ E 16^2
-

14

A square garden path is made of 225 paving slabs.

How many slabs are along one side?

- A 25 B 15 C 112 D 45 E 14
-

15

How many square numbers are greater than 100 and less than 200?

- A 4 B 3 C 5 D 6 E 2
-

16

Leo builds a cube from small cubes. It is 4 small cubes long, 4 wide and 4 high. He takes off the top layer.

How many small cubes are left?

- A 60 B 16 C 32 D 52 E 48
-

17

The square root of a number is between 7 and 8. Which of these could the number be?

A 55

B 45

C 65

D 75

E 35

18

What is $3^2 \times 2^3$?

A 72

B 30

C 36

D 48

E 54

19

Amir squares a number and then adds 10. He gets 154.

What number did he start with?

A 13

B 14

C 72

D 12

E 11

20

Which of these is the largest?

A 11^2 B 5^3 C 4^3 D 10^2 E 12^2

Part 2: Write your answer

21

What is 14^2 ?

Write your answer in the boxes on the answer sheet, one digit in each box.

22

What is the cube root of 64?

Write your answer in the boxes on the answer sheet, one digit in each box.

23

What is $15^2 - 12^2$?

Write your answer in the boxes on the answer sheet, one digit in each box.

24

One square patio uses 100 tiles. Another square patio uses 64 tiles.

How many more tiles are along one side of the bigger patio?

Write your answer in the boxes on the answer sheet, one digit in each box.

25

The cube root of a number is 5. What is the number?

Write your answer in the boxes on the answer sheet, one digit in each box.

26

What is the smallest number you can add to 200 to make a square number?

Write your answer in the boxes on the answer sheet, one digit in each box.

27

A square of tiles has 12 tiles along each side. Ravi adds tiles to make the next size of square.

How many tiles does he add?

Write your answer in the boxes on the answer sheet, one digit in each box.

Answer sheet

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Name

Draw a firm line through the box next to your answer, like the example.

Part 1: Multiple choice

Ex	A ☐	B ☒	C ☐	D ☐	E ☐
1	A ☐	B ☐	C ☐	D ☐	E ☐
2	A ☐	B ☐	C ☐	D ☐	E ☐
3	A ☐	B ☐	C ☐	D ☐	E ☐
4	A ☐	B ☐	C ☐	D ☐	E ☐
5	A ☐	B ☐	C ☐	D ☐	E ☐
6	A ☐	B ☐	C ☐	D ☐	E ☐
7	A ☐	B ☐	C ☐	D ☐	E ☐
8	A ☐	B ☐	C ☐	D ☐	E ☐
9	A ☐	B ☐	C ☐	D ☐	E ☐
10	A ☐	B ☐	C ☐	D ☐	E ☐
11	A ☐	B ☐	C ☐	D ☐	E ☐
12	A ☐	B ☐	C ☐	D ☐	E ☐
13	A ☐	B ☐	C ☐	D ☐	E ☐
14	A ☐	B ☐	C ☐	D ☐	E ☐
15	A ☐	B ☐	C ☐	D ☐	E ☐
16	A ☐	B ☐	C ☐	D ☐	E ☐
17	A ☐	B ☐	C ☐	D ☐	E ☐
18	A ☐	B ☐	C ☐	D ☐	E ☐
19	A ☐	B ☐	C ☐	D ☐	E ☐
20	A ☐	B ☐	C ☐	D ☐	E ☐

Part 2: Write your answer, one digit in each box

21			
22			
23			
24			
25			
26			
27			

Answers

For a parent to mark with. One mark for each question: the paper is out of 27. Talk through any your child got wrong, using the explanation.

Q	Answer	How to get it
1	E 169	$13^2 = 13 \times 13 = 169$.
2	D 14	$14 \times 14 = 196$.
3	C 5	$5 \times 5 \times 5 = 125$.
4	C 225	$15^2 = 15 \times 15 = 225$.
5	B 186	121, 144, 169 and 196 are 11^2 , 12^2 , 13^2 and 14^2 .
6	D 27	$196 - 169 = 27$.
7	B 27	$27 = 3^3$ and is odd. 8 and 64 are cube numbers but even. 49 and 81 are square numbers.
8	E 12 and 13	$12^2 = 144$ and $13^2 = 169$. 150 is between them.
9	D 61	$125 - 64 = 61$.
10	A 12	The square root of 64 is 8 and the cube root of 64 is 4. $8 + 4 = 12$.
11	B 169	$169 = 13^2$.
12	C 49	$74 - 25 = 49$, and $49 = 7^2$.
13	C 8^2	$4^3 = 64$ and $8^2 = 64$.
14	B 15	$15 \times 15 = 225$.
15	A 4	121, 144, 169 and 196: that makes 4.
16	E 48	The cube has 64 small cubes. The top layer is $4 \times 4 = 16$. $64 - 16 = 48$.
17	A 55	$7^2 = 49$ and $8^2 = 64$. Only 55 is between them.
18	A 72	$9 \times 8 = 72$.
19	D 12	$154 - 10 = 144$, and $144 = 12 \times 12$.
20	E 12^2	$12^2 = 144$, $11^2 = 121$, $5^3 = 125$, $4^3 = 64$ and $10^2 = 100$.
21	196	$14^2 = 14 \times 14 = 196$.
22	4	$4 \times 4 \times 4 = 64$.
23	81	$225 - 144 = 81$.
24	2	The sides are 10 tiles ($10 \times 10 = 100$) and 8 tiles ($8 \times 8 = 64$). $10 - 8 = 2$.
25	125	$5 \times 5 \times 5 = 125$.
26	25	The next square number after 200 is $15^2 = 225$. $225 - 200 = 25$.
27	25	$13^2 - 12^2 = 169 - 144 = 25$.

Score: out of 27