

11+ Maths Practice Paper

Year 6 · Advanced

Lesson 5.1: Number patterns and linear sequences

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

Here is a sequence: 5, 8, 11, 14, ...

What is the 20th term?

A 65

B 60

C 59

D 58

E 62

Answer: E Each term is 2 more than the 3 times table: $3 \times 20 = 60$, and $60 + 2 = 62$.

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

Now turn over and start Part 1.

Part 1: Multiple choice

1

Here is a sequence: 0.75, 1, 1.25, 1.5

What is the rule?

- A take away 0.25 each time
- B add 25 each time
- C add 0.5 each time
- D add 0.25 each time
- E add 0.2 each time

2

Here is a sequence: 3, 9, 15, 21, ...

What is the 100th term?

- A 600
- B 597
- C 594
- D 300
- E 603

3

Here is a sequence: -11, -7, -3, 1, ?

What is the next term?

- A 5
- B -5
- C 4
- D -1
- E 3

4

Here is a sequence: 1.2, ?, 2.4, 3, 3.6

What is the missing term?

- A 2
- B 1.6
- C 1.8
- D 1.5
- E 1.7

5

Here is a sequence: 6, 13, 20, 27, ...

Which term is 153?

- A the 23rd term
- B the 21st term
- C the 20th term
- D the 25th term
- E the 22nd

6

In a sequence, the 3rd term is 17 and the 7th term is 37.
The sequence adds the same number each time.

What is the 1st term?

- A** 12 **B** 2 **C** 5 **D** 7 **E** 10
-

7

Here is a sequence: 5, ?, 125, 625

What is the missing term?

- A** 25 **B** 75 **C** 100 **D** 50 **E** 65
-

8

Here is a sequence: 729, 243, 81, ?, 9

What is the missing term?

- A** 45 **B** 36 **C** 27 **D** 54 **E** 18
-

9

Here is a sequence: 4, 11, 18, 25, ...

Which of these numbers is NOT in the sequence?

- A** 67 **B** 100 **C** 109 **D** 88 **E** 46
-

10

Here is a sequence: 3, 5, 9, 15, 23, ?

What is the next term?

- A** 30 **B** 33 **C** 31 **D** 46 **E** 35
-

11

Here is a sequence: 1, 3, 4, 7, 11, 18, ?

What is the next term?

- A** 28 **B** 25 **C** 36 **D** 29 **E** 32
-

12

Here is a sequence: 1.5, 1, 0.5, 0, ?

What is the next term?

- A** -1 **B** 0.5 **C** -0.5 **D** -5 **E** -0.05
-

13

The 1st term of a sequence is 3.

The rule is: multiply by 2, then add 1.

What is the 4th term?

- A** 31 **B** 15 **C** 27 **D** 63 **E** 24
-

14

Sequence A: 3, 8, 13, 18, ...

Sequence B: 50, 46, 42, 38, ...

Which of these numbers is in both sequences?

- A** 33 **B** 28 **C** 46 **D** 42 **E** 38
-

15

The 1st term of a sequence is 7.

The rule is add 6.

Which term is the first one bigger than 100?

- A** the 100th term
B the 18th term
C the 16th term
D the 17th term
E the 15th term
-

16

Jo saves £5 in week 1, £8 in week 2 and £11 in week 3.

She keeps adding £3 more each week.

How much does she save in week 12?

- A** £36 **B** £38 **C** £60 **D** £35 **E** £41
-

17

Here is a sequence: 83, ?, ?, ?, 35
It takes away the same number each time.

What is the 3rd term?

- A 67 B 55 C 59 D 47 E 51

18

In a sequence, each term is half of the one before.
The 4th term is 12.

What is the 1st term?

- A 96 B 24 C 18 D 48 E 6

19

Here is a sequence: 2, 9, 16, 23, ...

What is the difference between the 30th term and the 20th term?

- A 63 B 77 C 140 D 10 E 70

20

In a sequence, the 5th term is 41 and the 9th term is 69.
The sequence adds the same number each time.

What is the 20th term?

- A 139 B 160 C 146 D 140 E 153

Part 2: Write your answer

21

Here is a sequence: 8, 17, 26, 35, ...

What is the 50th term?

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

22

Here is a sequence: ?, ?, 42, 51, 60

What is the first term?

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

23

Here is a sequence: 7, 11, 15, 19, ...

299 is a term in this sequence. What is its position? (For example, write 7 for the 7th term.)

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

24

Here is a sequence: 2, 4, 9, 17, 28, ?

What is the next term?

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

25

Here is a sequence: 4, 12, 36, 108, ?

What is the next term?

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

26

Sequence A: 5, 12, 19, 26, ...

Sequence B: 100, 96, 92, 88, ...

Which number between 50 and 90 is in both sequences?

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

27

Ali has 40 stickers at the end of week 1.

He adds 15 stickers every week after that.

At the end of which week does he first have more than 300 stickers?

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

Answer sheet

11+ Maths Practice Paper · Year 6 · Lesson 5.1: Number patterns and linear sequences

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	D add 0.25 each time	Each gap is 0.25 ($1 - 0.75 = 0.25$) and the terms get bigger.
2	B 597	Each term is 3 less than the 6 times table: $6 \times 100 = 600$, and $600 - 3 = 597$.
3	A 5	The rule is add 4: $1 + 4 = 5$.
4	C 1.8	Each gap is 0.6 ($3 - 2.4 = 0.6$), so the missing term is $1.2 + 0.6 = 1.8$.
5	E the 22nd term	Each term is 1 less than the 7 times table. $153 + 1 = 154$, and $154 \div 7 = 22$.
6	D 7	From the 3rd to the 7th term is 4 jumps, and $37 - 17 = 20$, so each jump is $20 \div 4 = 5$. Going back 2 jumps: $17 - 10 = 7$.
7	A 25	Each term is 5 times the one before: $5 \times 5 = 25$, and $25 \times 5 = 125$.
8	C 27	Each term is the one before divided by 3: $81 \div 3 = 27$. Check: $27 \div 3 = 9$.
9	B 100	Each term is 3 less than the 7 times table. $100 + 3 = 103$, which is not in the 7 times table.
10	B 33	The steps are 2, 4, 6, 8, so the next step is 10: $23 + 10 = 33$.
11	D 29	Each term is the two terms before it added together: $11 + 18 = 29$.
12	C -0.5	The terms go down by 0.5 each time: $0 - 0.5 = -0.5$.
13	A 31	The terms are 3, 7, 15, 31. For example, $15 \times 2 = 30$, and $30 + 1 = 31$.
14	E 38	Sequence A goes 3, 8, 13, ... 33, 38, 43, and sequence B goes 50, 46, 42, 38, 34, so 38 is in both.
15	D the 17th term	Each term is 1 more than the 6 times table. The 16th term is $6 \times 16 + 1 = 97$, and the 17th term is 103.
16	B £38	Each week is 2 more than the 3 times table: $3 \times 12 = 36$, and $36 + 2 = £38$.
17	C 59	From 83 to 35 is 4 jumps and 48 altogether, so each jump is $48 \div 4 = 12$. The terms are 83, 71, 59, 47, 35.
18	A 96	Going backwards, do the opposite: double. $12 \times 2 = 24$, $24 \times 2 = 48$, $48 \times 2 = 96$.
19	E 70	From the 20th term to the 30th term is 10 jumps of 7: $10 \times 7 = 70$.
20	C 146	From the 5th to the 9th term is 4 jumps and 28 altogether, so the rule is add 7. Each term is 6 more than the 7 times table: $7 \times 20 + 6 = 146$.
21	449	Each term is 1 less than the 9 times table: $9 \times 50 = 450$, and $450 - 1 = 449$.
22	24	The rule is add 9. Going back two jumps: $42 - 9 = 33$, then $33 - 9 = 24$.
23	74	Each term is 3 more than the 4 times table. $299 - 3 = 296$, and $296 \div 4 = 74$. So 299 is the 74th term.
24	42	The steps are 2, 5, 8, 11: they grow by 3. The next step is 14, and $28 + 14 = 42$.

Q	Answer	How to get it
25	324	Each term is 3 times the one before: $108 \times 3 = 324$.
26	68	Sequence A between 50 and 90: 54, 61, 68, 75, 82, 89. Sequence B: 88, 84, 80, 76, 72, 68, 64, 60, 56, 52. Only 68 is in both.
27	19	At the end of week 18 he has $40 + 17 \times 15 = 295$ stickers, and at the end of week 19 he has 310.

Score: out of 27