

Algebra & Sequences: Medium Practice Paper

Q1. A number machine subtracts 4 from every input and then multiplies the result by 3. What comes out when 10 goes in?

- A. 6 B. 18 C. 26 D. 30 E. 36

Q2. The table shows the number of tiles used in each pattern. Which rule gives the number of tiles in pattern n ?

Pattern	1	2	3	4
Tiles	5	9	13	17

- A. $4n + 1$ B. $4n - 1$ C. $4n + 5$ D. $5n$ E. $n + 4$

Q3. The sequence 6, 12, 18, 24, ... carries on in the same way. Which of these numbers is NOT a term in it?

- A. 48 B. 66 C. 84 D. 96 E. 106

Q4. If $n = 4$, what is the value of $n^2 - 2n$?

- A. 4 B. 6 C. 8 D. 12 E. 16

Q5. The perimeter of a rectangle is found using $P = 2(l + w)$. Find P when $l = 9$ cm and $w = 5$ cm.

- A. 14 cm B. 19 cm C. 23 cm D. 28 cm E. 45 cm

Q6. The sequence 4, 9, 14, 19, ... carries on in the same way. How many of its terms are less than 60?

- A. 10 B. 11 C. 12 D. 13 E. 15

Q7. Three pencils and a rubber costing 40p come to £1.30 altogether. A pencil costs p pence. Which equation shows this?

- A. $3p + 40 = 130$
- B. $3p + 40 = 1.30$
- C. $p + 40 = 130$
- D. $3(p + 40) = 130$
- E. $3p - 40 = 130$

Q8. Solve for x .

$$5x + 2x = 42$$

- A. 4
- B. 5
- C. 6
- D. 7
- E. 8

Q9. The n th term of a sequence is $100 \div n$. What is the 4th term?

- A. 4
- B. 20
- C. 25
- D. 40
- E. 96

Q10. What is the missing number in this sequence?

160, 80, ?, 20, 10

- A. 30
- B. 40
- C. 50
- D. 60
- E. 70

Q11. Simplify this expression.

$$12a \div 4$$

- A. $3a$
- B. $4a$
- C. $8a$
- D. $16a$
- E. $48a$

Q12. n is a whole number and $3n < 20$. What is the largest value n can be?

- A. 5
- B. 6
- C. 7
- D. 17
- E. 60

Q13. There are 30 children in a class and there are 6 more girls than boys. How many girls are there?

- A. 12 B. 15 C. 17 D. 18 E. 24

Q14. Which of these expressions has the greatest value when $x = 3$?

- A. $2x + 5$ B. $4x - 2$ C. x^2 D. $x + 9$ E. $5x - 4$

Q15. The first four terms of a sequence are 2, 5, 10, 17. Each term is found by squaring its position number and then adding the same amount every time. What is the 6th term?

- A. 26 B. 33 C. 37 D. 41 E. 50