

Algebra & Sequences: Hard Practice Paper 1

Q1. What is the n th term rule for this sequence?

5, 9, 13, 17

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

Q2. Solve for x .

$$5x - 7 = 3x + 9$$

- A. 1 B. 2 C. 8 D. 16 E. 18

Q3. The n th term of a sequence is $n^2 + 2$. What is the 5th term?

- A. 12 B. 17 C. 25 D. 27 E. 49

Q4. Simplify this expression.

$$3(2a + 4) - 5a$$

- A. $a + 12$ B. $a + 4$ C. $11a + 12$ D. $6a + 12$ E. $a - 12$

Q5. Two pens and one ruler cost 95p altogether. A pen costs 30p. How much does the ruler cost?

- A. 25p B. 30p C. 35p D. 40p E. 65p

Q6. What is the next number in this sequence?

2, 6, 18, 54, ?

- A. 108 B. 142 C. 162 D. 168 E. 216

Q7. If $x = -3$, what is the value of $x^2 + 4x$?

- A. -21 B. -3 C. 3 D. 9 E. 21

Q8. The n th term of a sequence is $3n + 7$. Which term is equal to 52?

- A. 13th term B. 14th term C. 15th term D. 16th term E. 18th term

Q9. Solve for x .

$$4(x + 3) = 32$$

- A. 5 B. 7 C. 8 D. 11 E. 20

Q10. In this sequence each term is the sum of the two before it. What comes next?

$$3, 5, 8, 13, 21, ?$$

- A. 26 B. 29 C. 31 D. 34 E. 42

Q11. A rectangle has a length of $2x$ and a width of $(x + 3)$. Which expression gives its perimeter?

- A. $6x + 6$ B. $3x + 3$ C. $6x + 3$ D. $2x^2 + 6x$ E. $4x + 6$

Q12. A sequence starts at 7 and each term is double the previous term minus 3. What is the 4th term?

- A. 19 B. 27 C. 31 D. 35 E. 39

Q13. Solve for x .

$$2x + 5 = 17 - x$$

- A. 3 B. 4 C. 6 D. 7 E. 12

Q14. What is the n th term rule for this sequence?

$$100, 93, 86, 79$$

- A. $107 - 7n$ B. $100 - 7n$ C. $7n + 93$ D. $93 - 7n$ E. $7n - 107$

Q15. Ann is 3 times as old as Ben. Their ages add up to 32 years. How old is Ann?

A. 8

B. 11

C. 16

D. 24

E. 28

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