

Algebra & Sequences: Hard Practice Paper 3

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

8, 13, 18, 23

- A. $5n + 3$ B. $5n - 3$ C. $n + 5$ D. $3n + 5$ E. $5n + 8$

Q2. Solve for x .

$$6x + 5 = 2x + 29$$

- A. 4 B. 6 C. 7 D. 8 E. 24

Q3. The n th term of a sequence is $2n^2$. What is the 4th term?

- A. 16 B. 24 C. 32 D. 36 E. 64

Q4. Simplify this expression.

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

- A. $3a + 7$ B. $3a + 23$ C. $7a + 7$ D. $3a - 7$ E. $3a + 11$

Q5. The square numbers are 1, 4, 9, 16, 25, ... What is the 12th square number?

- A. 121 B. 132 C. 144 D. 148 E. 169

Q6. If $x = 6$ and $y = -2$, what is the value of $xy + 10$?

- A. -22 B. -2 C. 2 D. 14 E. 22

Q7. The n th term of a sequence is $60 - 4n$. Which is the first term that is negative?

- A. 14th term B. 15th term C. 16th term D. 17th term E. 20th term

Q8. Solve for x.

$$x \div 3 + 5 = 12$$

- A. 7 B. 14 C. 21 D. 36 E. 51

Q9. A sequence starts at 2 and each term is the previous term multiplied by 2 then add 1. What is the 4th term?

- A. 11 B. 17 C. 23 D. 29 E. 47

Q10. Concert tickets cost £7 each and there is a £3 booking fee for the whole order. Which expression gives the cost in pounds of buying n tickets?

- A. $7n + 3$ B. $7n - 3$ C. $3n + 7$ D. $10n$ E. $21n$

Q11. If $4x + 3 = 27$, what is the value of $2x$?

- A. 6 B. 10 C. 12 D. 14 E. 24

Q12. The triangular numbers are 1, 3, 6, 10, 15, ... What is the 10th triangular number?

- A. 45 B. 50 C. 55 D. 60 E. 66

Q13. Solve for x.

$$5(x - 2) = 3(x + 4)$$

- A. 5 B. 7 C. 9 D. 11 E. 22

Q14. What is the nth term rule for this sequence?

-1, 2, 5, 8

- A. $3n - 4$ B. $3n + 4$ C. $n - 3$ D. $4n - 3$ E. $3n - 1$

Q15. Sara has 3 times as many stickers as Tom. If Sara gives Tom 10 stickers they will have the same number each. How many stickers did Sara start with?

A. 10

B. 20

C. 30

D. 40

E. 60

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