

Algebra & Sequences: Hard Practice Paper 7

Q1. A sequence begins 0, 3, 8, 15, 24, ... What is its 8th term?

- A. 48 B. 55 C. 63 D. 71 E. 80

Q2. Solve for x.

$$2x \div 3 + 5 = 13$$

- A. 8 B. 9 C. 12 D. 15 E. 27

Q3. Four notebooks and two pens cost £11 altogether. Two notebooks and two pens cost £7. How much does one notebook cost?

- A. £1.50 B. £2.00 C. £2.50 D. £3.00 E. £3.50

Q4. If $a = 3$ and $b = -2$, what is the value of $(a - b)^2$?

- A. 1 B. 5 C. 13 D. 25 E. -25

Q5. p is an odd number and q is an even number. Which of these is always odd?

- A. pq B. $p + p$ C. $q + q$ D. $pq + q$ E. $p + q$

Q6. The n th term of a sequence is $200 - 6n$. How many of its terms are positive?

- A. 32 B. 33 C. 34 D. 35 E. 36

Q7. In a sequence each term is the sum of the two terms before it. The 5th term is 33 and the 6th term is 54. What is the 3rd term?

- A. 9 B. 12 C. 15 D. 21 E. 24

Q8. Simplify this expression.

$$6(2x + 3) - (4x - 5)$$

- A. $8x + 23$ B. $8x + 13$ C. $8x + 3$ D. $12x + 23$ E. $16x + 23$

Q9. A rectangle is 3 cm longer than it is wide and its perimeter is 38 cm. What is its area?

- A. 72 cm^2 B. 80 cm^2 C. 88 cm^2 D. 90 cm^2 E. 96 cm^2

Q10. What is the next number in this sequence?

100, 84, 69, 55, 42, ?

- A. 28 B. 29 C. 30 D. 31 E. 32

Q11. If $5a - 2b = 26$ and $b = 7$, what is the value of a ?

- A. 6 B. 7 C. 8 D. 9 E. 12

Q12. Sara is 3 times as old as her brother. In 4 years' time she will be twice as old as he is then. How old is Sara now?

- A. 8 B. 9 C. 12 D. 15 E. 16

Q13. Which of these numbers is both a square number and a cube number?

- A. 16 B. 36 C. 64 D. 81 E. 125

Q14. A sequence goes up by the same amount each time. Its 3rd term is 14 and its 8th term is 44. What is its 1st term?

- A. 0 B. 2 C. 4 D. 6 E. 8

Q15. A number is doubled and then 7 is added. The answer is the same as three times the number with 2 taken away. What is the number?

A. 5

B. 7

C. 9

D. 11

E. 14

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