Algebra & Sequences: Hard Practice Paper 3 Answers

Q#	Answer	Explanation
1	A	The sequence goes up in 5s, so start with 5n, giving 5, 10, 15, 20. Each term is 3 more, so the rule is 5n + 3.
2	B	Take 2x from both sides: 4x + 5 = 29. Take 5 away: 4x = 24, so x = 6.
3	C	n^2 means 4 × 4 = 16, and then 2 × 16 = 32.
4	A	Expand both brackets: 5a + 15 and 2a + 8. Then 5a − 2a = 3a and 15 − 8 = 7, giving 3a + 7.
5	C	The 12th square number is 12 × 12 = 144.
6	B	xy means x × y = 6 × (−2) = −12, and then −12 + 10 = −2.
7	C	For n = 15 the term is 60 − 60 = 0, which is not negative. For n = 16 it is 60 − 64 = −4, the first negative term.
8	C	Take 5 from both sides: x ÷ 3 = 7. Then multiply by 3: x = 21.
9	C	The terms are 2, then 2 × 2 + 1 = 5, then 5 × 2 + 1 = 11, then 11 × 2 + 1 = 23.
10	A	The tickets cost 7n pounds, and the £3 fee is added once for the order, giving 7n + 3.
11	C	First solve for x: 4x = 27 − 3 = 24, so x = 6. Then 2x = 2 × 6 = 12.
12	C	Each triangular number adds the next counting number: after 15 come 21, 28, 36, 45 and 55, so the 10th is 55.
13	D	Expand both sides: 5x − 10 = 3x + 12. Take 3x from both sides: 2x − 10 = 12, so 2x = 22 and x = 11.
14	A	The sequence goes up in 3s, so start with 3n, giving 3, 6, 9, 12. Each term is 4 less, so the rule is 3n − 4.
15	C	If Tom starts with t, Sara has 3t. After the swap 3t − 10 = t + 10, so 2t = 20 and t = 10. Sara started with 3 × 10 = 30.

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