

Algebra & Sequences: Medium Practice Paper 6 Answers

Q#	Answer	Explanation
1	C	Work backwards through the machine, undoing each step. Undo the adding: $31 - 3 = 28$. Then undo the multiplying: $28 \div 4 = 7$.
2	B	Each pattern uses 3 more matchsticks than the one before. From pattern 4 to pattern 8 is 4 more patterns, so $13 + 4 \times 3 = 25$ matchsticks.
3	C	The 6 outside multiplies everything inside the bracket, not just the first part. It gives 6 lots of n and 6 lots of 2, and $6 \times 2 = 12$, so the expression is $6n + 12$.
4	C	Each term is 0.5 more than the one before, so the next term is $1.9 + 0.5 = 2.4$.
5	C	The sequence goes up in 4s, so every term is 3 more than a multiple of 4. Take the 3 away and see if 4 divides what is left: $55 - 3 = 52$, and $52 \div 4 = 13$, so 55 is a term. The other four numbers do not divide exactly this way.
6	D	Replace h with 4 in the formula. First $5 \times 4 = 20$ for the four hours, and then $20 + 12 = 32$, so the cost is £32.
7	C	From the 2nd term to the 6th term there are 4 steps, and the sequence rises by $29 - 9 = 20$ across them, so each step is $20 \div 4 = 5$. The 4th term is two steps after the 2nd, so it is $9 + 2 \times 5 = 19$.
8	A	Multiplying the number by 5 gives $5n$, and taking 6 away from that gives $5n - 6$. Her answer was 29, so the equation is $5n - 6 = 29$. Writing $5(n - 6)$ would mean subtracting first, which is not what she did.
9	B	The question asks what 24 must be divided by to leave 6. Since $24 \div 6 = 4$, the missing number is $x = 4$.
10	D	The terms go up by 7 every time the position goes up by 1. From the 7th term to the 10th term is 3 steps, so the difference is $3 \times 7 = 21$. (The terms themselves are 47 and 68.)

11	A	Multiplying can be done in any order, so gather the numbers first: $4 \times 3 = 12$. The two letters are simply multiplied together as pq, giving 12pq.
12	C	Take the loose marbles away first: the three bags hold $25 - 4 = 21$ marbles between them. The bags are identical, so one bag holds $21 \div 3 = 7$ marbles.
13	E	An equilateral triangle has three equal sides, so divide the whole perimeter by 3. Both parts must be divided: 9y shared into 3 gives 3y, and $12 \div 3 = 4$, so one side is $(3y + 4)$ cm.
14	A	Written as quarters the terms are $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$, so each term is one quarter more than the one before. The next term is five quarters, which is $1 \frac{1}{4}$.
15	C	Put the position numbers into the rule one at a time: $4 + 5 = 9$, then $8 + 5 = 13$, then $12 + 5 = 17$, then $16 + 5 = 21$. So the sequence is 9, 13, 17, 21.