Multiple choice questions - Binomial expansion and sequences

Year: Year 12 · 10

Question 1 $\binom{5}{2} =$

- ○ **A.** 5
- ○ **B.** 10
- ○ **C.** 20
- ○ **D.** 25

Question 2 The coefficient of x^2 in $(1+x)^6$ is

- ○ **A.** 6
- ○ **B.** 12
- ○ **C.** 15
- ○ **D.** 20

Question 3 The 5th term of $2, 5, 8, \ldots$ is

- ○ **A.** 14
- ○ **B.** 17
- ○ **C.** 11
- ○ **D.** 20

Question 4 The sum of $1 + 2 + \cdots + 10$ is

- ○ **A.** 45
- ○ **B.** 50
- ○ **C.** 55
- ○ **D.** 100

Question 5 The common ratio of $81, 27, 9, \ldots$ is

- ○ **A.** 3
- ○ **B.** $\frac{1}{3}$
- ○ **C.** -3
- ○ **D.** 54

Question 6 S_∞ of $6, 3, 1.5, \ldots$ is

- ○ **A.** 9
- ○ **B.** 12
- ○ **C.** 18

- ◯ **D.** does not exist

Question 7 In $(3+2x)^4$, the coefficient of x is

- ◯ **A.** 24
- ◯ **B.** 54
- ◯ **C.** 108
- ◯ **D.** 216

Question 8 $\sum_{r=1}^{4} r^2 =$

- ◯ **A.** 10
- ◯ **B.** 16
- ◯ **C.** 30
- ◯ **D.** 100

Question 9 A geometric series converges when

- ◯ **A.** $r > 1$
- ◯ **B.** $|r|$
- ◯ **C.** $r = 1$
- ◯ **D.** r

Question 10 $u_n = 5n - 2$. Then $u_4 =$

- ◯ **A.** 18
- ◯ **B.** 20
- ◯ **C.** 22
- ◯ **D.** 14

Answer grid - Binomial expansion and sequences

Year: Year 12

Question	Answer	Explanation
1	**B**	$\frac{5 \times 4}{2} = 10.$
2	**C**	$\binom{6}{2} = 15.$
3	**B**	$2 + 4 \times 3.$
4	**C**	$\frac{10}{2} \times 11.$
5	**B**	$27/81.$
6	**B**	$6/(1 - \frac{1}{2}).$
7	**C**	$4 \times 27 \times 2.$
8	**C**	$1 + 4 + 9 + 16.$
9	**B**	Terms must shrink.
10	**A**	$20 - 2.$