Observations Based on Pascal's Triangle

A. Choose the correct answer:

1. Which pattern can be observed in Pascal's Triangle?

a) Only even numbers

b) Each number is the product of two numbers above it

c) Each number is the sum of two numbers directly above it

d) Each row is filled with 1s only

2. The sum of the numbers in the 3rd row of Pascal's Triangle is

a) 4 b) 6

c) 8 d) 2

3. What do you notice about the left and right sides of Pascal's Triangle?

a) They are different b) One side has only even numbers

c) They are symmetrical d) They form square numbers

4. Which row starts with 1, 4, 6?

a) 2nd b) 3rd

c) 4th d) 5th

5. In Pascal's Triangle, the diagonal lines show

a) Multiples of 10 b) Fibonacci numbers

c) Powers of 2 d) Prime numbers

B. Write the Missing Terms to Complete the Sentences:

1. The numbers in Pascal's Triangle show a _____ pattern on both sides.
2. The sum of the numbers in the nth row is _____.
3. The triangle shows a connection between addition and _____.
4. The number in the center of the 4th row is _____.
5. Each row in Pascal's Triangle starts and ends with the number _____.

C. Mark each sentence with a True (✔) or False (✗):

1. The numbers on both sides of Pascal's Triangle are always 1 _____

2. Pascal's Triangle shows reflection symmetry _____
3. The sum of numbers in the 4th row is 15 _____
4. The triangle contains no odd numbers _____
5. Every row in Pascal's Triangle has a unique pattern _____

D. Figure out the answers to these questions:

1. Write any four rows of Pascal's Triangle and find their row-wise sums.
2. Identify the rows where all numbers are even.
3. Find and write the Fibonacci sequence hidden in Pascal's Triangle.
4. Show how Pascal's Triangle displays line symmetry.
5. Find and color all odd numbers in the first six rows of Pascal's Triangle.

E. Challenge yourself with these questions:

1. Write the first six rows of Pascal's Triangle and highlight symmetrical parts.
2. Find the total sum of numbers from row 0 to row 4.
3. Look at the diagonal lines and identify any familiar number patterns.
4. Count how many odd numbers are in the 5th and 6th rows.
5. What happens to the row sum when you go from one row to the next?