Pascal's Triangle

A. Choose the correct answer:

1. The first number in every row of Pascal's Triangle is

a) 0 b) 2

c) 1 d) 3

2. Which row in Pascal's Triangle starts with 1, 2, 1?

a) 1st row b) 2nd row

c) 3rd row d) 4th row

3. In Pascal's Triangle, each number is the sum of

a) All numbers above b) The two numbers directly above it

c) The number below it d) The three numbers above it

4. The third row of Pascal's Triangle is

a) 1 1 1 b) 1 2 1

c) 1 3 3 1 d) 1 1

5. Pascal's Triangle is a pattern of

a) Squares b) Odd numbers

c) Even numbers d) Numbers arranged in a triangle

B. Write the Missing Terms to Complete the Sentences:

1. The top of Pascal's Triangle is always _____.
2. The 4th row of Pascal's Triangle is _____.
3. Each number is the sum of two numbers from the row _____ it.
4. Pascal's Triangle is named after the mathematician _____ Pascal.
5. The triangle shows patterns in _____ numbers.

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

1. Pascal's Triangle begins with 1 _____
2. The second row of Pascal's Triangle is 1 2 1 _____

3. Each number is double the one above it _____
4. The triangle is symmetric along its center _____
5. Pascal's Triangle shows odd and even numbers only _____

D. Figure out the answers to these questions:

1. Write the first five rows of Pascal's Triangle.
2. Find the sum of the numbers in the 3rd row of Pascal's Triangle.
3. Observe and describe any symmetry you find in Pascal's Triangle.
4. Add the numbers in the 4th row and write the total.
5. Use Pascal's Triangle to find the coefficients in the expansion of $(a + b)^2$.

E. Challenge yourself with these questions:

1. Find the 5th row of Pascal's Triangle and explain how you found it.
2. What is the middle number in the 4th row of Pascal's Triangle?
3. Draw Pascal's Triangle up to 6 rows and identify all even numbers.
4. Use Pascal's Triangle to find the sum of the numbers in the 5th row.
5. Create a pattern using Pascal's Triangle and color the odd and even numbers differently.