**Lesson 4** **Pascal’s Triangle and Newton’s Binomial**

**Patterns**:

1. Always start and end with 1
2. Each number is the sum of the two numbers appearing directly above it
3. The sum of the coefficients in one row is \_\_\_\_\_.
4. The number of terms in one row is one more than the power of the binomial
5. First number = last number, second number = second last number etc.
6. Expand the following expressions:
7. =
8. =
9. =
10. =
11. =

When expanding a binomial, it is easier to use the coefficients written as combinations:

=

|  |
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| **Newton’s Binomial:**  =  There are terms in this expansion.  Term: |

1. Expand =
2. Expand =
3. Determine the 5th term of the expansion of .
4. Determine the middle term of .
5. Which term of is a constant?
6. Determine the coefficient of the term which contains in the expansion of .