Hmmmm….. (Red)

1. If you know the degree of two different polynomials, how could you determine:
   a. The degree of the sum of the polynomials?

   b. The degree of the product of the polynomials?

   c. The degree of the quotient of the polynomials if the greater degree polynomial is divided by the lesser degree polynomial?

2. What went wrong with the following binomial expansion? Correct the work please!

$$(2x^2 + 3)^3 =$$
$$(1 \bullet 2(x^2)^3) + (3 \bullet 2(x^2)^2(3)) + (3 \bullet 2(x^2)(3)^2) + 3^3 =$$
$$2x^5 + 18x^4 + 54x^2 + 27$$

3. Nancy says that the sum of two binomials will always be a binomial, and the product of two binomials will always be a trinomial. What do you think? What is the greatest and smallest number of terms that might be possible from adding or multiplying binomials? Explain how you know.

Hmmmm….. (Blue)

1. Suppose you have a fourth degree polynomial and a fifth degree polynomial.
   a. What is the degree of the sum of the polynomials? Give an example to prove you are correct.

   b. What is the degree of the product of the polynomials? Give an example to prove you are correct.

   c. The degree of the quotient of the polynomials if the fifth degree polynomial is divided by the fourth degree polynomial? Give an example to prove you are correct.

2. What went wrong with the following binomial expansion? Correct the work please!

$$(2x^2 + 3)^3 =$$
$$(1 \bullet 2(x^2)^3) + (3 \bullet 2(x^2)^2(3)) + (3 \bullet 2(x^2)(3)^2) + 3^3 =$$
$$2x^6 + 18x^4 + 54x^2 + 27$$

3. Nancy says that the sum of two binomials will always be a binomial, and the product of two binomials will always be a trinomial. What do you think? Defend why you agree or give counter-examples if you disagree.