Math

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1 Problem 1

A polynomial is an expression with at least one variable. All powers in a polynomial must be non-negative integers. The degree of a polynomial is the degree of the term with the largest degree. The degree of a term is the exponents on the variables of the term added up.

For example the degree of the term $3x^2$, assuming x is a variable, would be 2 as x is the only variable and its exponent is 2. Similiarly the degree of $3x^2 + 5x + 2$ is 2 as $3x^2$ is the term with the largest degree 2.

Another example is the term x^2y, assuming both x and y are variables, the degree of the term is 3 as the exponent of x is 2 and the exponent of y is 1. $2 + 1$ is 3. Simillarily the degree of $2x^2y + x^2 + 2xy + 5$ is 3. As the degree of the largest term, $2x^2y$ is 3.

2 Problem 2

$3^(3.5)x^2y^3z^6 + z^2$ is not a polynomial as there is a non-integer power 3.5

3 Problem 3

If a and b are both parameters then there is 1 variable and the degree is 2. If a is a variable and b is a parameter then there are 2 variables and the degree is 3. If b is a variable and a is a parameter then there are 2 variables and the degree is 4. If a and b are both variables then there are 3 variables and the degree is 4. In all cases it is a polynomial

4 Problem 4

The degree is 2 as x^2 is the term with the heighest degree.

5 Problem 5

If a is a parameter then it cannot change within the problem, if a is a variable it can change. The same applies to x. x is generally a variable and a is generally a parameter. Meaning the difference between the two is that a cannot change within the problem but x can.