Answer on question #55856– Math – Algebra

1. State the degree:

x^5 y^2 +7x^3 y^7 -3x^2 y^4

Solution

For polynomials in two or more variables, the degree of a term is the sum of the exponents of the variables in the term. The degree of the polynomial is again the maximum of the degrees of all terms in the polynomial.

$x^5 y^2$ has the degree of $5 + 2 = 7$

$7x^3 y^7$ has the degree of $3 + 7 = 10$

$-3x^2 y^4$ has the degree of $2 + 4 = 6$

The maximum of 7, 10 and 6 is 10, therefore the degree of the polynomial

$x^5 y^2 + 7x^3 y^7 - 3x^2 y^4$ is 10.

Answer: 10.

2. The function f(x) = x + pie is a polynomial.

A: True

B: False

Solution

A polynomial is an expression consisting of variables and coefficients, that involves only the operations of addition, subtraction, multiplication, and non-negative integer exponents. An example of a polynomial of a single variable is $f(x) = x + \pi$. It is a polynomial indeed, because it has a constant π, variable x and the exponent 1 in x. A polynomial $f(x) = x + \pi$ with two terms is called a binomial.

Answer: A: True.

3. What is the leading coefficient of this polynomial when written in standard form?

$1 - 2x + 5x^4$

Solution

The leading term of a polynomial is the term with the highest degree. In this case, the leading term is $5x^4$.

The leading coefficient of a polynomial is the coefficient of the leading term. In this case, the leading coefficient is 5.

Answer: 5.

4. Which polynomial is a monomial?

A: 5r^2 s^3 t^4

B: 1 − 2x + 5x^4

C: 6 − 2x^3 -4x^2 + x^5

D: 2p^2 – p

Solution

A monomial is a polynomial which has only one term.

Answer: A: 5r^2 s^3 t^4.

5. State the degree

-4a^3 b^2 c^5

Solution

For polynomials in two or more variables, the degree of a term is the sum of the exponents of the variables in the term.

The term $-4a^3b^2c^5$ has the degree of $3 + 2 + 5 = 10$.

Thus, the degree of the term $-4a^3b^2c^5$ is 10.

Answer: 10.