Degree of a Polynomial

RaiseMyMarks.com

2021

What is the degree of a polynomial?

When you're given a polynomial, the term with the highest power, the value of tha highest power, is called the **degree** of the polynomial. For example,

$$3x^3 + 2x^2 - x + 4$$

the term $3x^3$ has the highest power since x^3 has the highest power value of 3. So, the degree of the polynomial is 3. Therefore, the degree is found by considering the term of the plynomial with the highest power.

Let's consider a few examples.

Examples

What is the degree of each of the following polynomials?

a) $-z^7 + 2z^6 - 3z^5$

b) $-3x^2 + 10x^9 + x^4 + 7$

c) $a^{13} + a^{133} + a^{1333}$

Solution:

a) The term with the highest power is $-z^7$. The value of the power is 7. So the **degree** of the polynomial is 7.

b) The term with the highest power is $10x^9$. The value of the power of this term is 9. So the **degree** of the polynomial is 9.

c) The term with the highest power is a^{1333}. The value of the power of this term is 1333. So the **degree** of the polynomial is 1333.

Exercises

Find the degree of each polynomial and justify you answer.

(a) $x^2 + 3x^4 - 3$

(b) 6

(c) $y^2 + 2$

(d) $-44y + 22y^2 + 14$

(e) $z^2 - z$

(f) $x^3 + 2x^2 - x - 1$

(g) $-\frac{1}{2}x^2 + 4x$

(h) $\pi y^3 + y^4 + y^2 + y - 1$

(i) $-z^7 + 2z^6 - 3z^5$

(j) $1 + x + x^2 + x^3 + x^4 + x^5$