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5. Classify the following as linear, quadratic and cubic polynomials:

Solution:

We know that,

Linear polynomial: A polynomial of degree one is called a linear polynomial.

Quadratic polynomial: A polynomial of degree two is called a quadratic polynomial.

Cubic polynomial: A polynomial of degree three is called a cubic polynomial.

(i) x^2+x

Solution:

The highest power of x^2+x is 2

the degree is 2

Hence, x^2+x is a quadratic polynomial

(ii) $x-x^3$

Solution:

The highest power of $x-x^3$ is 3

the degree is 3

Hence, $x-x^3$ is a cubic polynomial

(iii) $y+y^2+4$

Solution:

The highest power of $y+y^2+4$ is 2

the degree is 2

Hence, $y+y^2+4$ is a quadratic polynomial

(iv) $1+x$

Solution:

The highest power of $1+x$ is 1
the degree is 1
Hence, $1+x$ is a linear polynomial.

(v) $3t$

Solution:

The highest power of $3t$ is 1
the degree is 1
Hence, $3t$ is a linear polynomial.

(vi) r^2

Solution:

The highest power of r^2 is 2
the degree is 2
Hence, r^2 is a quadratic polynomial.

(vii) $7x^3$

Solution:

The highest power of $7x^3$ is 3
the degree is 3
Hence, $7x^3$ is a cubic polynomial.