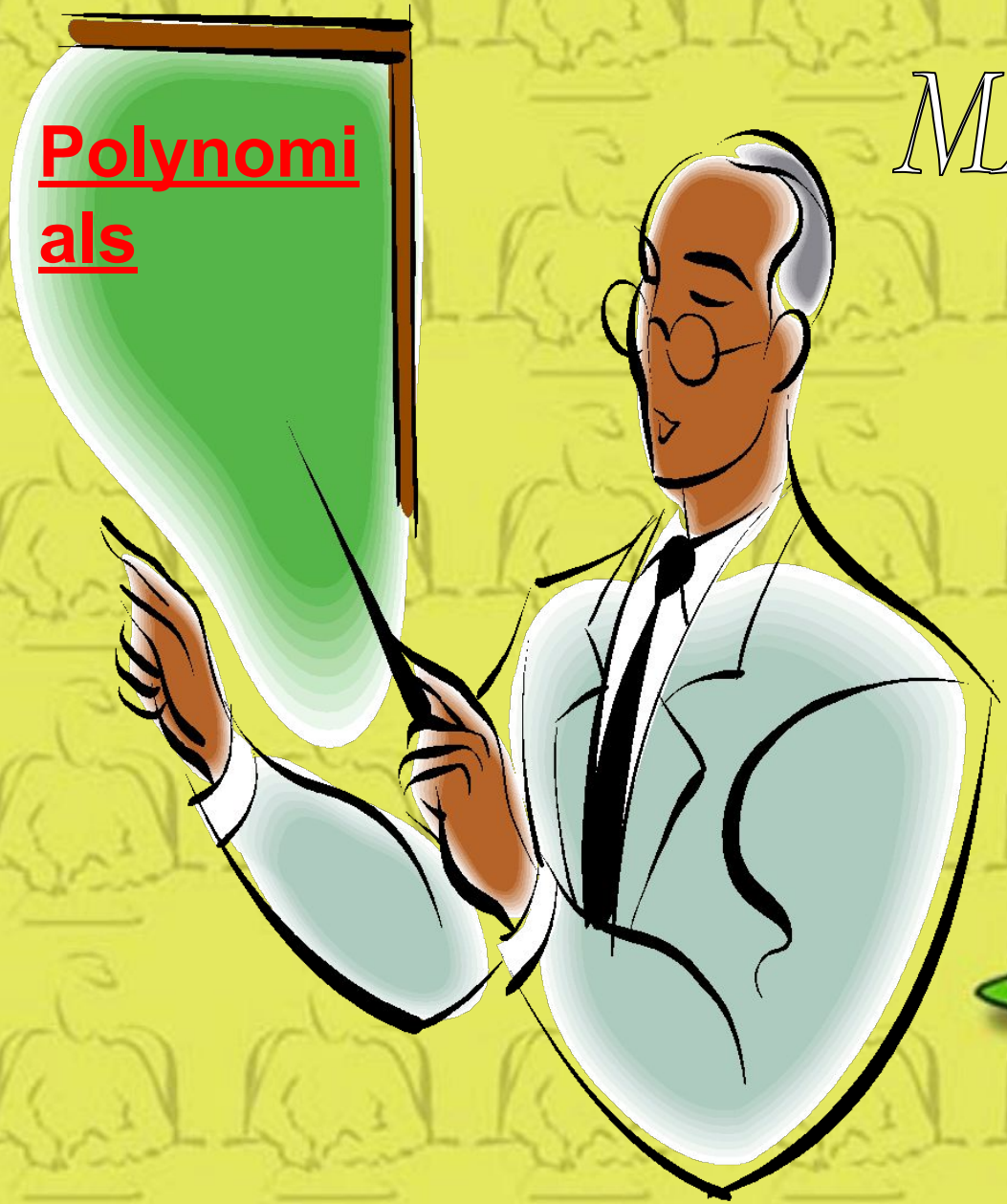
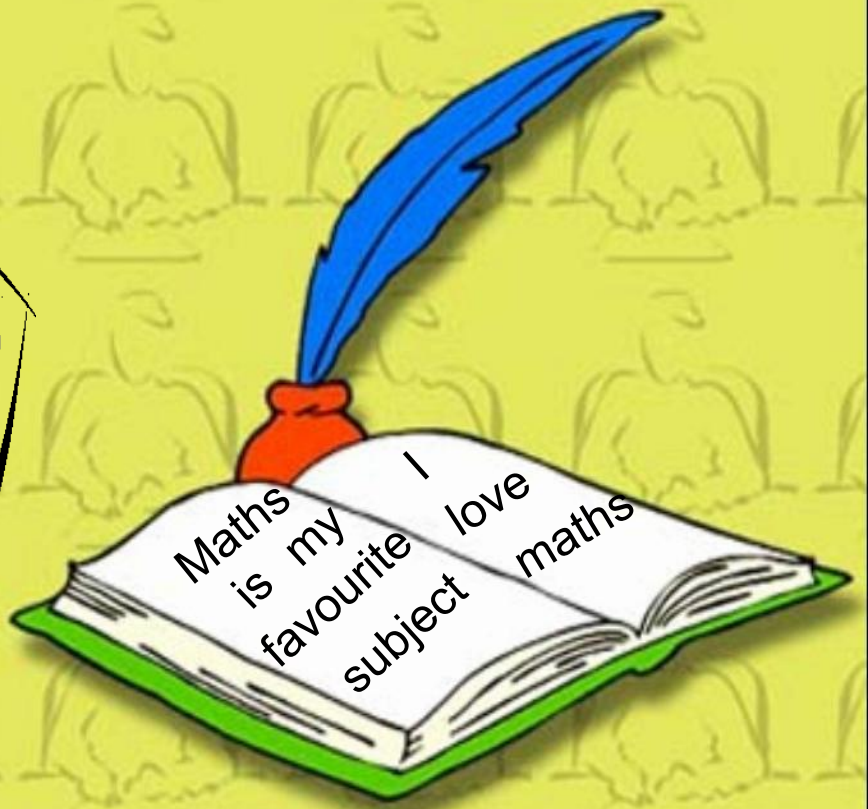
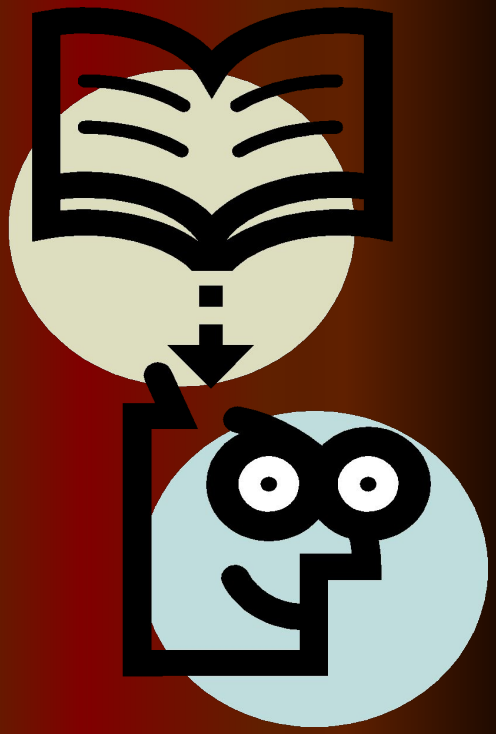
MATHS PROJECT

Polynomials





Equality of two polynomials



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Definition

If two or more terms contain the same variable (s) they are called like terms.

$5x^2y$

For example, $5x^2y$ and $-3x^2y$ are

like terms.

However, 7xy and $4x^2y^2$

are not like terms .

Definition

Equal polynomials

Two polynomials are equal if and only if they have like terms with the same coefficients

For example, $P(x,y) = 5x^2y^2 - 3xy + 8x^2y$

and $Q(x,y) = 8x^2y + 5x^2y^2 - 3xy$ **are equal polynomials.**

$2x^2 + 3x = 5$

$9x^2 + 9y + 8 = 0$

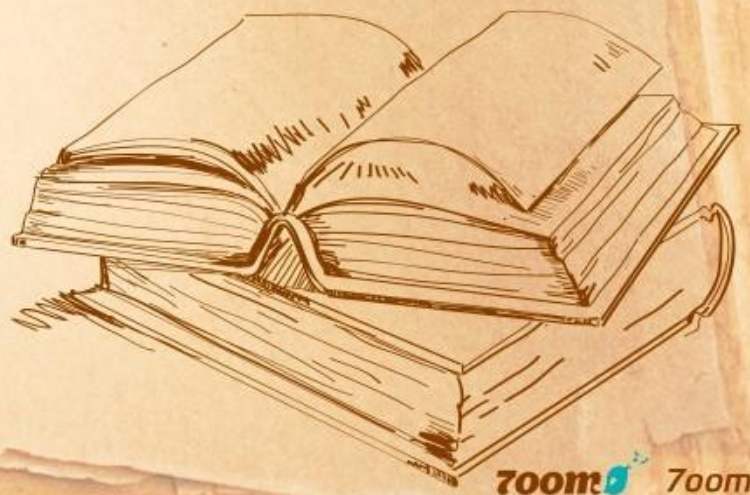
ADDING POLYNOMIALS

$2x^2 + 3x = 9$

$x^3 - 3x^2 + x + 1 = 0$

$4y^3 - 4y^2 + 5y + 8 = 0$

Recall that the degree of a polynomial is the same as the highest degree of the terms in the polynomial. We write deg|P(x)| to mean the degree of a polynomial function P(x). For example, if $P(x)=x^3-x^2+1$, then deg|P(x)| =3.



Let $P(x)=a_nx^n+a_{n-1}x^{n-1}+\ldots+a_2x^2+a_1x$ and $Q(x)=b_mx^m+b_{m-1}x^{m-1}+\ldots+b_2x^2+b_1x$ be two polynomials such that $\deg|Q(x)|\geq\deg|P(x)|$. Then the sum of these polynomials is defined as $P(x)+Q(x)=b_mx^m+\ldots+(a_n+b_n)x^n+(a_{n-1}+b_{n-1})x^{n-1}+\ldots+(a_2+b_2)x^2+(a_1+b_1)x+a_0+b_0$

Example

Let $P(x)=-6x^4+5x^3-2x+5$, $Q(x)=x^5+x^3+x$, and $R(x)=2x^5+x^4-x^2$

Find each sum.

A) $P(x)+Q(x)$ B) $P(x)+R(x)$ C) $R(x)+Q(x)$

A) $P(x)+Q(x)=x^5-6x^4+6x^3-x+5$

B) $P(x)+R(x)= 2x^5-5x^4+5x^3- x^2 -2x+5$

C) $R(x)+Q(x)= 3x^5-x^4+x^3- x^2 +x$

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Ticket to travel to the world

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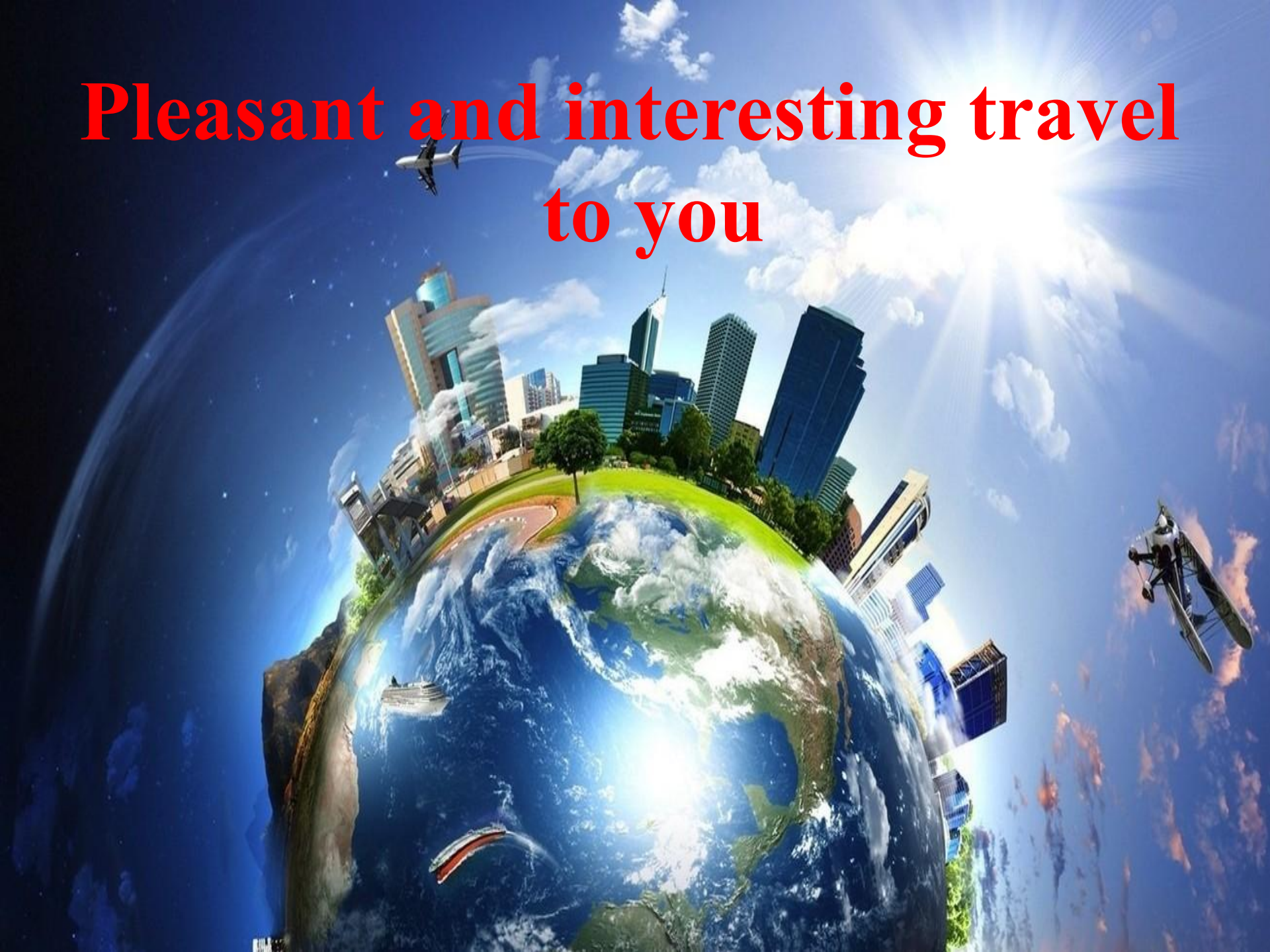
Pleasant and interesting travel
to you

THANK YOU
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