

Chapter 9

Polynomials



Fig. 9-1: Constituents of a polynomial illustrated.

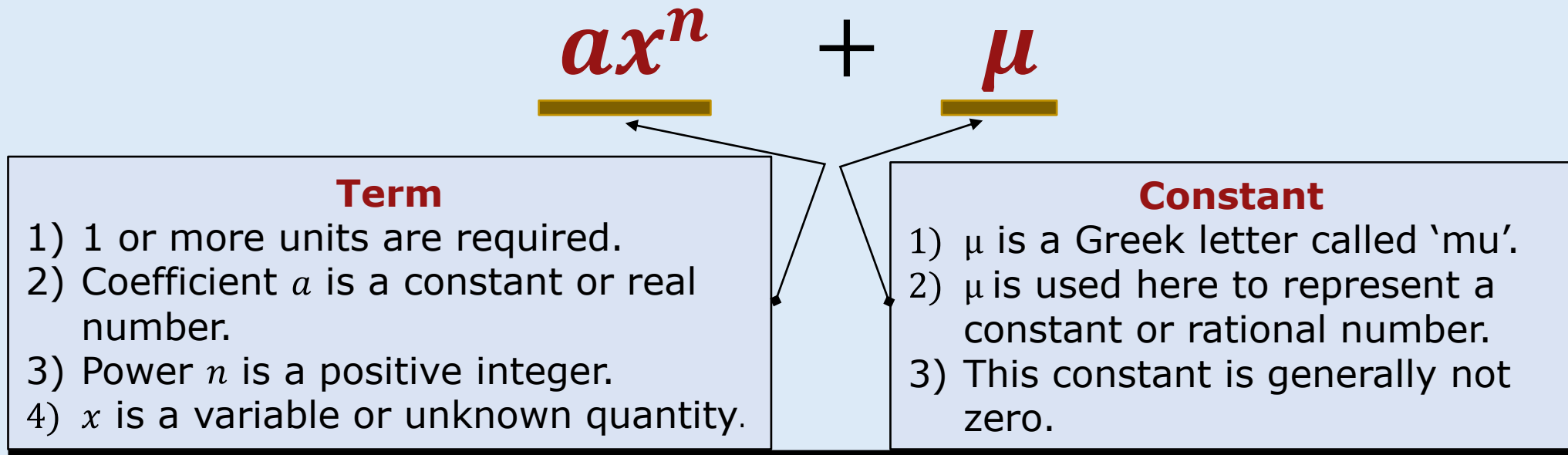


Fig. 9-2: Division of polynomials' constituents explained.

$$\text{Numerator} = (\text{Denominator}) \times (\text{Answer}) + \text{Remainder}$$

The diagram illustrates the components of polynomial division using the equation $\text{Numerator} = (\text{Denominator}) \times (\text{Answer}) + \text{Remainder}$. Each term is underlined in yellow. Arrows point from three text boxes below to these terms: the first box points to 'Numerator' and 'Denominator', the second box points to 'Denominator' and 'Answer', and the third box points to 'Remainder'.

This is the number above the line and is technically called '**Dividend**'.

This is the number below the line and is technically called '**Divisor**'.

This is the maximum number of the multiple of the denominator (divisor) you can get in the numerator (dividend) and is technically called '**Quotient**'.

This is the number that is left after having obtained the quotient and is technically called '**Remainder**'.



Fig. 9-3: A polynomial of degree 1.

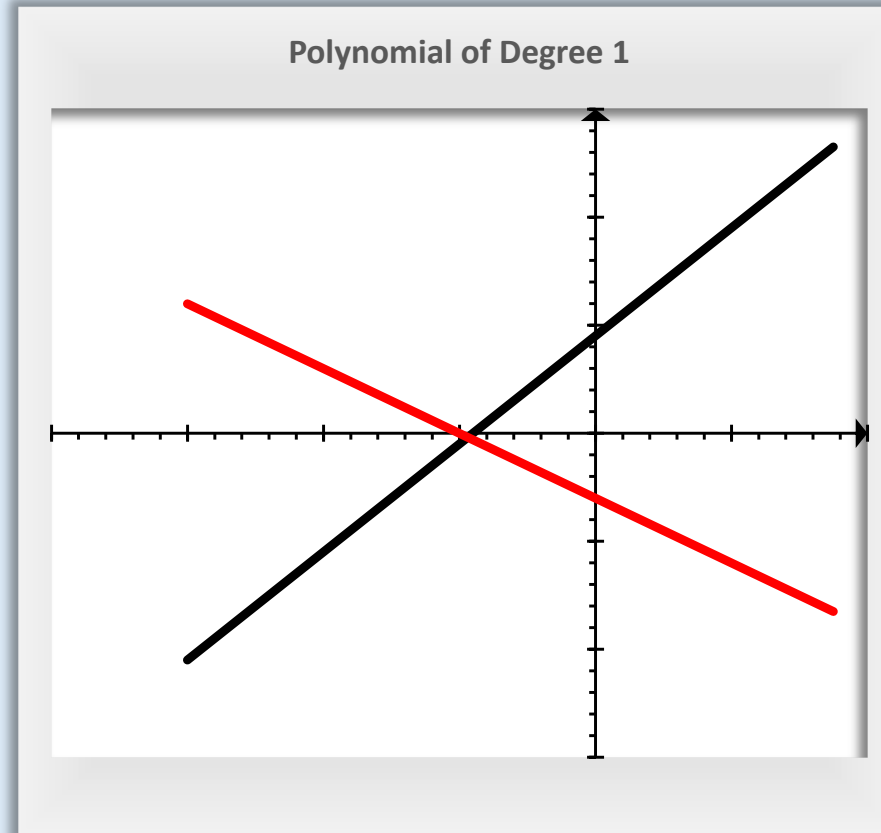


Fig. 9-4: A polynomial of degree 2.

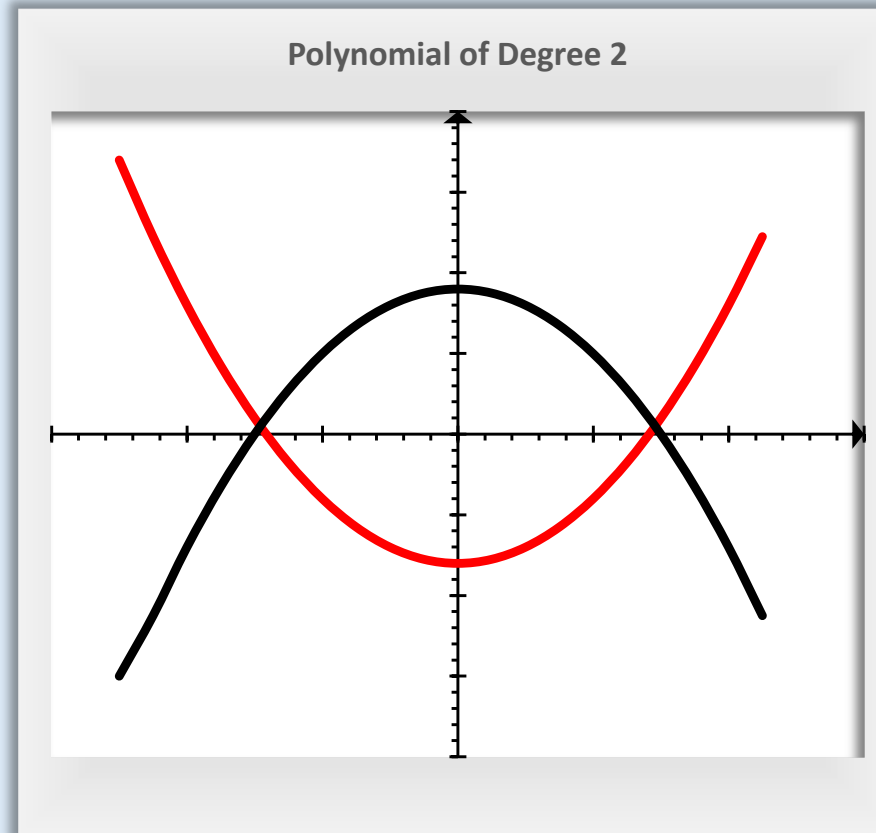
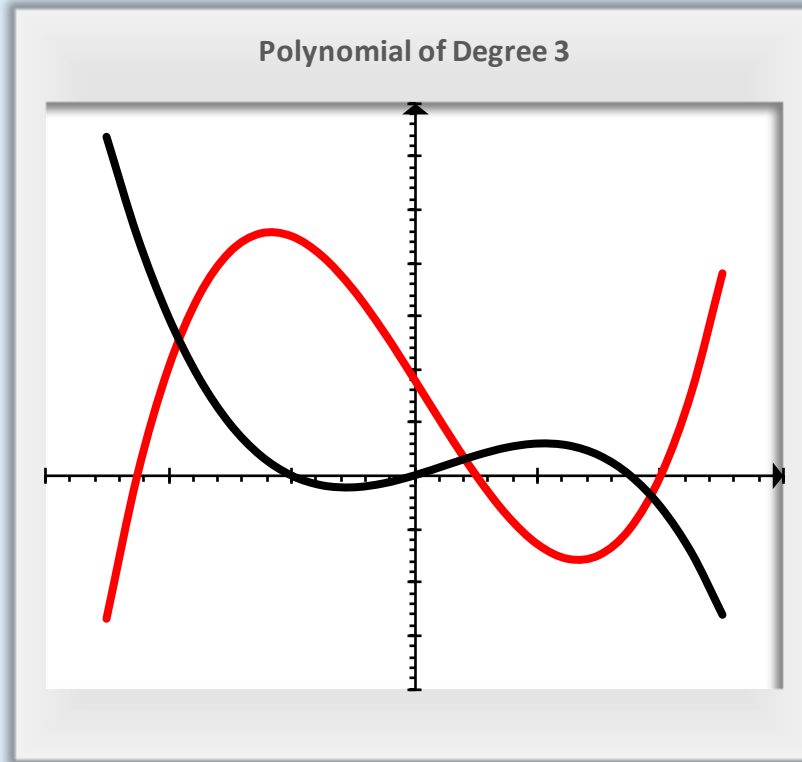
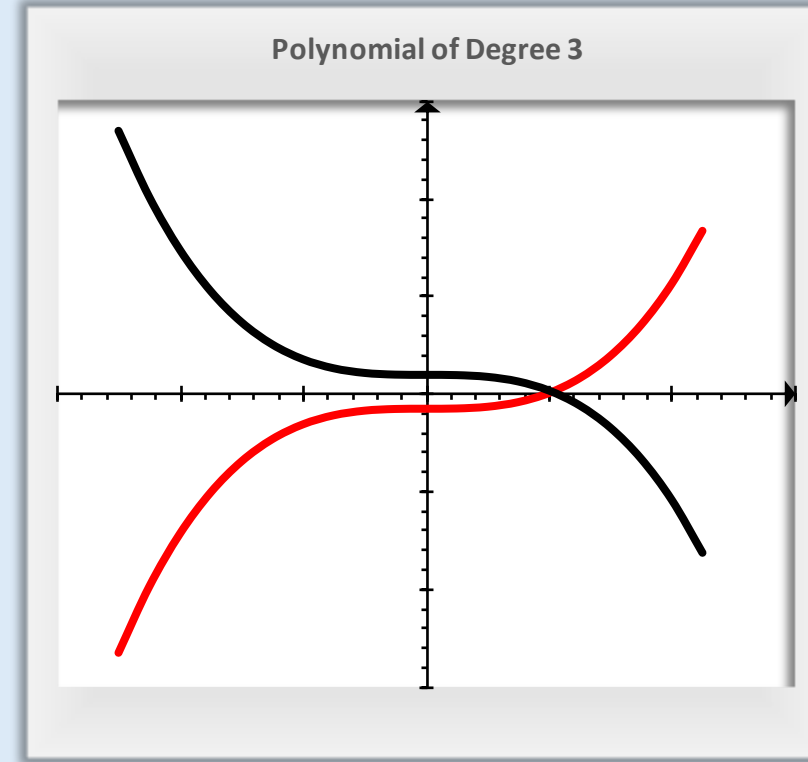


Fig. 9-5: A polynomial of degree 3: (a) three distinct roots and (b) one real root.



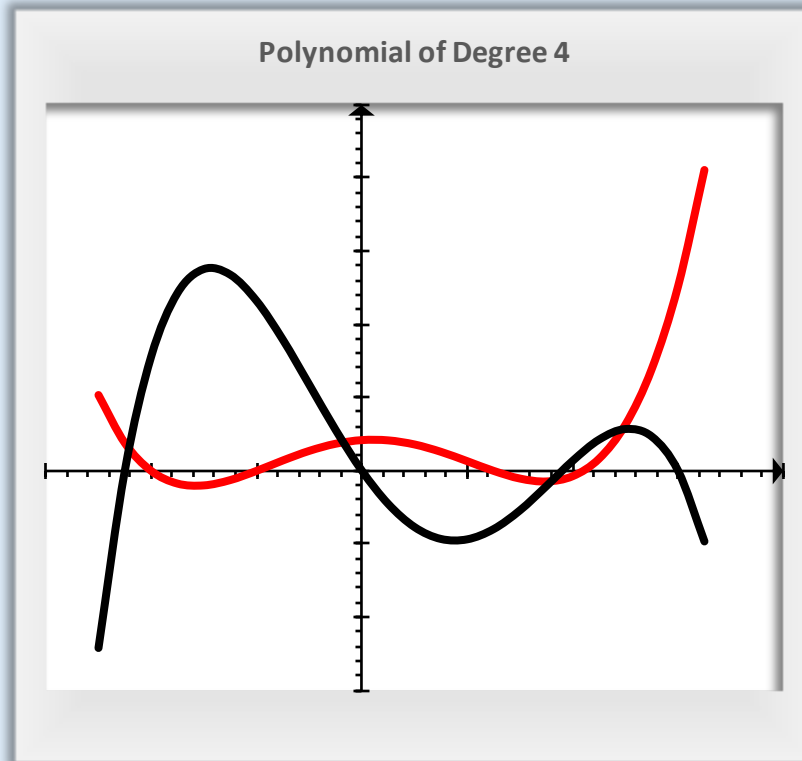
(a)



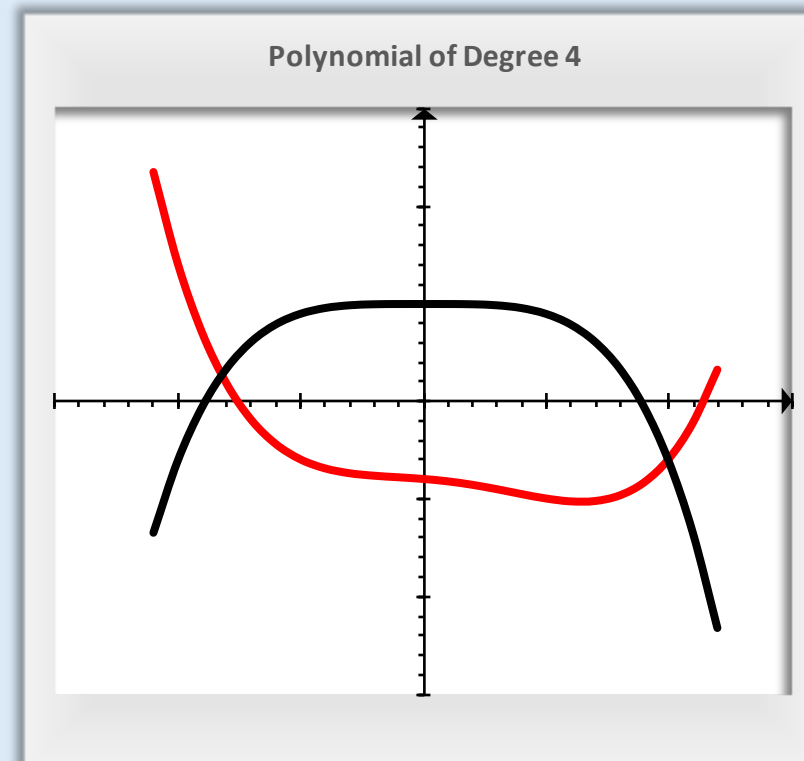
(b)



Fig. 9-6: A polynomial of degree 4: (a) four distinct roots and (b) two real roots.



(a)



(b)



Thank You

