

Sec. 9.1 Adding and Subtracting Polynomials

polynomial: a monomial or a sum of monomials

monomial: a number, a variable, or the product of a number and variable(s)

degree of a monomial: sum of the variables' exponents

Ex: Find the degree of

a. $3x^5$ 5

b. $4xy^2$ 3

c. -2 0

degree of a polynomial: degree of the monomial with the highest degree

Ex: Find the degree of

a. $3x^5 + 4xy^2 - 2$ → 5
5 3 0

b. $9 - 3m^2 - m^3 + 2m$ → 3
0 2 3 1

↳ Rewrite in standard form: terms are ordered from the highest to lowest degree.

$$-m^3 - 3m^2 + 2m + 9$$

	Type of polynomial	Degree	Name \rightarrow degree
12	monomial	0	constant
$3x$	monomial	1	linear
$3x^2 + 12$	binomial	2	quadratic
$5x^3 + 3x^2 + 12$	trinomial	3	cubic
$7x^4 + 5x^3 + 3x^2 + 12$	polynomial	4	quartic
$8x^5 + 1$	binomial	5	quintic

Find the sum of $(3d^2 + 5d - 1) + (-4d^2 - 5d + 2)$ by using

a. the vertical form

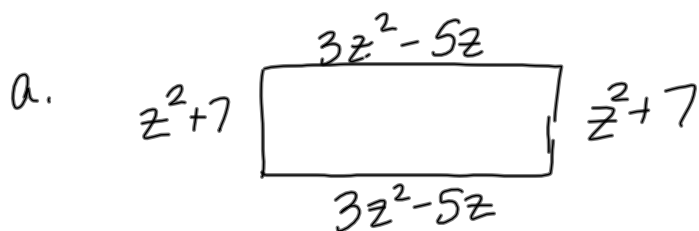
$$\begin{array}{r} 3d^2 + 5d - 1 \\ -4d^2 - 5d + 2 \\ \hline -d^2 + 0 + 1 \rightarrow \boxed{-d^2 + 1} \end{array}$$

b. the horizontal form

$$\begin{aligned} & (3d^2 + 5d - 1) + (-4d^2 - 5d + 2) \\ & (3d^2 - 4d^2) + (5d - 5d) + (-1 + 2) \\ & -1d^2 + 0d + 1 \\ & -d^2 + 1 \end{aligned}$$

* Add the coefficients of like terms (everything after the coefficient is the same)

Write a polynomial expression for the perimeter of each polygon.



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

$$\begin{array}{r} 3z^2 - 5z \\ 3z^2 - 5z \\ 1z^2 + 7 \\ 1z^2 + 7 \\ \hline \end{array}$$

$$8z^2 - 10z + 14$$

$$\cancel{2ax^1 + 2ax^1} = 8x$$

P. 430 (19 - 49) odd

$$2x^2 + 5x \ominus (x^2 - 3)$$

Change all signs

$$2x^2 + 5x - x^2 + 3$$