# **13.1 – Polynomial Functions**

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| **Polynomial Example** | **Degree** | **Name Using Degree** | **Number****of Terms** | **Name Using** **Number of Terms** |
| $$6$$ | 0 | Constant | 1 | Monomial |
| $$x+3$$ | 1 | Linear | 2 | Binomial |
| $$3x^{2}-4x+8$$ | 2 | Quadratic | 3 | Trinomial |
| $$2x^{3}-5x^{2}-2x+3$$ | 3 | Cubic | 4 | Polynomial of 4 Terms |
| $$x^{4}-3x^{3}+x^{2}-5x+6$$ | 4 | Quartic | 5 | Polynomial of 5 Terms |
| $$x^{5}+9$$ | 5 | Quintic | 2 | Binomial |

\*Standard Form of a polynomial is written in descending order by degree.

**Examples:**

Write each polynomial in standard form. Then, classify it by degree and by number of terms.

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| --- | --- |
| 1. $-7x+5x^{4}$

Standard Form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. $-2x^{5}$

Standard Form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Sometimes like terms will need to be combined before the polynomial can be written in Standard Form. Like terms must have the same variable with the same exponent.

|  |  |
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| 1. $x^{2}-4x+3x^{2}+2x$

Standard Form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. $4x-6x+5$

Standard Form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. $3x^{3}+x^{2}-4x+2x^{3}$

Standard Form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. $-3x^{4}-4x+7x^{4}+x-2x^{2}+8$

Standard Form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |