Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_

 Classifying Polynomials

Polynomials can be classified (named) by the **number of terms.**

|  |  |  |
| --- | --- | --- |
| **Polynomial** | **Number of Terms** | **Name** |
| $$3x^{2}$$ | 1 term | *Monomial* |
| $$5x-8$$ | 2 terms | *Binomial* |
| $$4x^{2}-9x-10$$ | 3 terms | *Trinomial* |

Polynomials can also be classified by the **degree** (largest exponent of the variable)

|  |  |  |
| --- | --- | --- |
| **Polynomial** | **Degree** | **Name** |
|  |  |  |
| -24 | 0 degree ( no power of x) | *Constant* |
| 2x-8 | 1st degree (x to the power of 1 | *Linear* |
| $$3x^{2}-7$$ | 2nd degree ($x^{2}$) | *Quadratic* |
| $$12x^{3}+10$$ | 3rd degree ($x^{3}$) | *Cubic* |

**Directions: Complete the table below.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Polynomial** | **Standard Form** | **Degree** | **Number of Terms** | **Name** |
| 1. | $$3-7x-9x^{2}$$ | $$9x^{2}-7x+3$$ | 2 | 3 | Quadratic trinomial |
| 2. | $$5-6x^{2}$$ |  |  |  |  |
| 3. | -4 |  |  |  |  |
| 4. | $$-10+5x$$ |  |  |  |  |
| 5. | $$8x-2-6x^{3}$$ |  |  |  |  |

**Directions: Add** the polynomials. Write the answer in standard form.

6. $\left(5x^{2}+8x-10\right)+\left(-12-x+3x^{2}\right)$ 7. $\left(8x-x^{3}+4-9x^{2}\right)+ \left(7x^{3}+9x^{2}-10-8x\right)$

Directions: **Subtract** the polynomials. Write the answer in standard form.

8. $\left(9x^{2}-4x+8\right)-\left(12x^{2}-6x-3\right)$ 9. $\left(x-2x^{3}+8-7x^{2}\right)-\left(8+5x-3x^{2}\right)$

Add or Subtract each polynomial.

10. $\left(4x^{2}-2x+8\right)+\left(x^{2}+3x-2\right)$ 11. $\left(4x^{2}-2x+8\right)+\left(2x^{2}+2x-5\right)$

12. $\left(5x^{2}-x+5\right)+\left(x^{2}+x-5\right)$ 13. $\left(3x^{2}-3x+4\right)+\left(x^{2}+3x-6\right)$

14. $\left(2x^{2}-2x+3\right)+\left(x^{2}+5x-5\right)$ 15. $\left(2x^{2}-4x+8\right)-\left(x^{2}+3x-1\right)$

16. $\left(6x^{2}-4x+1\right)-\left(2x^{2}+6x-1\right)$ 17. $\left(6x^{2}-2x+2\right)-\left(5x^{2}+2x-2\right)$

18. $\left(7x^{2}-5x+11\right)-\left(3x^{2}+2x-11\right)$ 19. $\left(7x^{2}-8x+10\right)-\left(2x^{2}+x+10\right)$