Name: _____

Operations with Polynomials

Exercise 1: Classify the following polynomials according to the number of terms and degree:

1) -9.87
2) $-54x^{23}$
3) $a^5b^9c^4d^8$
4) $-4a^8b^7cd$
5) $65y^7x^8z$
6) $m^8n^8+m^7n^{11}$
7) $m^3b^8d^7a^9+4m^2b^5d^3a^4-9mb^2d^3$
8) x^3-4x^2+5x-6
9) $z^{12}+z^7+3z^8-z$
10) $31x^5-4x^7y+5xy^5-7x^4y^6$
11) $2f-9y+z-8q$
12) $2x^3y^8z^7+3x^9y^8-12$

Exercise 2: Find the degree of each polynomial.

1) $31x^5$
2) $-7x^3$
3) $7v^3$
4) 18
5) $-4a^8b^7cd$
6) $7x^5y^9$
7) $-4y^5x^3$
8) k^8+h^9
9) $x^2+z^7+3y^8-1$
10) $2x^3+4x^8-9x^7-11x^9-12$
11) $2f-9y+z-8q$
12) $2x^3y^8z^7+3x^9y^8-12$

Exercise 3: Arrange the terms of each polynomial so that the powers of *x* are in ascending order. Then arrange them in descending order.

1) $2+x^4+x^2$
2) $a^8bx^6-bcx^5+4-x^2$
3) $6x-3x^2y+4-2x^8$
4) $17xy^3+6x^4y-x^3y^2+y^5$
5) $8x^4-2x^8y+4x^9+\frac{3}{10}x^5$
6) $3a^2x^8-2a^2x^5+\frac{1}{4}x^2+\frac{1}{2}x$