

Math 95 Fall 2006
Quiz 6 Solutions

Name: _____

Class time: _____

1. Determine the leading coefficient, degree of the polynomial, and constant term of the polynomial

$$-11x^3 - 6x^2 + x + 3$$

Leading coefficient: -11

Degree of the polynomial: 3

Constant term: 3

2. Find the degree of each term and the degree of the polynomial

$$x^3y^2 - 5x^2y^7 + 6y^2 - 3$$

Term: x^3y^2 Degree 5

Term: $-5x^2y^7$ Degree 9

Term: $6y^2$ Degree 2

Term: -3 Degree 0

Degree of the polynomial: 9

3. Perform the indicated operations:

$$(a) (9x^4y^2 - 6x^2y^2 + 3xy) + (-18x^4y^2 - 5x^2y - xy + 1) = -9x^4y^2 - 6x^2y^2 + 2xy + 1$$

$$(b) (18x^3 - 2x^2 - 7x + 8) - (9x^3 - 6x^2 - 5x + 7) = 9x^3 + 4x^2 - 2x + 1$$

$$(c) -3x^2y(10x^2y^4 - 2xy^3 + 7)$$

$$\begin{aligned} -3x^2y(10x^2y^4 - 2xy^3 + 7) &= (-3x^2y)(10x^2y^4) - (-3x^2y)(2xy^3) + (-3x^2y)7 \\ &= -30x^4y^5 + 6x^3y^4 - 21x^2y \end{aligned}$$

$$(d) (y + 5)(y - 8)$$

$$y^2 - 8y + 5y - 40 = y^2 - 3y - 40$$

$$(e) (x + 3)^2$$

$$x^2 + 6x + 9$$

4. Multiply $(4x + 7y)(4x - 7y)$ using the rule for $(a + b)(a - b)$.

$$\begin{aligned}(4x + 7y)(4x - 7y) &= (4x)^2 - (7y)^2 \\ &= 16x^2 - 49y^2\end{aligned}$$

5. Let $g(x) = 2x^3 + x^2 + 4x - 1$. Compute $g(-2)$.

$$\begin{aligned}g(-2) &= 2(-2)^3 + (-2)^2 + 4(-2) - 1 \\ &= 2(-8) + 4 - 6 - 1 \\ &= -16 + 4 - 8 - 1 \\ &= -21\end{aligned}$$