
MATH3 (814013) – SPRING 2007

WORKSHEET 3

Question (1) : Which of the following are polynomials?

1. $3x^2 - 2x + 1$

2. $\sqrt{x-3}$

3. $x^2 - 2xy + y^2$

4. $\frac{x-1}{x^2+2}$

5. $\sqrt{3x+9}$

6. $\sqrt{3x+9}$

Question (2) : Given the polynomial $3x^5 - 6x^3 + 5$

- ❖ What is the number of terms in this polynomial?
- ❖ What is the degree of the first term?
- ❖ What is the degree of the second term?
- ❖ What is the degree of the third term?
- ❖ What is the degree of the whole polynomial?
- ❖ Is the polynomial in standard form?
- ❖ What is the number of variables?
- ❖ What is the coefficient of second term?
- ❖ What is the leading coefficient?

Question (3) : Repeat question (2) for the polynomial $6x^4y^2 - 3xy^3$.

Question (4) : Classify the following as monomial, binomial or trinomial.

(1) $x^3 + 4$

(2) $\frac{5}{2}x^2y^3$

(3) $x^4 - \sqrt{2}x^2 + 9$

(4) $x^2 + 5x^3 - 4x + 9$

(5) $3x^2 + 4x^2 - 2x^2 + 7$

(6) $2x^3 + 3x - 2x^3 - 2x$

Question (5) : Write the following polynomials in standard form:

1) $3x^2 + \frac{1}{2}x^4 - 2x^3 + 7$

2) $4 - \sqrt{5}x + x^2$

3) $3x^2 + \frac{1}{2}x^4 + 2x^2 + \frac{3}{2}x^4 - 2$

4) $(3x^2 - 2x + 5) - (x^2 + 3x - 7)$

5) $(x^3 - 2) - (2x^3 - [3x + 4])$

Question (5) : Which of the following are like terms:

❖ $3x^2$ and $7x$

❖ $5x^3y$ and $-13yx^3$

❖ 7 and 19

❖ $2x^2yz$ and $3x^2yz$

Question (6) : Given the monomial $3x^2y^5z$

(1) What is the degree? (2) What is the coefficient? (3) What is the number of variables?

Question (7) : Simplify each of the following as much as possible:

1) $(3x^2 - 2x + 5) + (x^2 + 3x - 7)$

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

3) $3(u^2 - 2v^2) + (u^2 + 5v^2)$

4) $(x^3 - 2) - (2x^3 - [3x + 4])$

5) $2x - \{1 - 5[x + 2(3 - 2x)]\}$

6) $(2x - 3)(2x^2 + 3x - 2)$

7) $(2xy + 3)(3x - 2y)$

8) $(6x + y)^2$

9) $(6x - 5)^2 + 5x[3 - x(4 - x)]$

10) $-4(x + h)^2 + 6(x + h) - (-4x^2 + 6x)$

11) $(2x + 3y)^2 - 4\{10x - 2x[(2x + 3y) - 2x]\}$

12) $(x + y)^3 - 2(x + y)^2 - xy(3x + 3y - 4)$

13) $2t - \{7 - 2[t - t(4 + t)]\}$

14) $(u - 3v)^2 - (2u - v)(2u + v)$

15) $-3x\{x[x - x(2 - x)] - (x + 2)(x^2 - 3)\}$

16) $(x + y)^3$

17) $(3x + 2y)^3$