

MATH3 (814013) – SPRING 2007

WORKSHEET 4

Question (1) :

- (a) Subtract $2x^2 - 5x + 4$ from $5x^2 - 6$.
- (b) Add $x^4 - 3x^3 + x^2$, $-x^3 - 2x^2 + 3x$ and $3x^2 - 4x - 5$.
- (c) Subtract the sum of $x^4 - 3x^3 + x^2$ and $-x^3 - 2x^2 + 3x$ from $-x^3 - 2x^2 + 3x^4$.

Question (2) : Circle the correct answer:

(1) Which of the following are like terms?

- (A) $-3x^2$ and $7x$ (B) $2x^3y^2$ and $7y^2x^3$ (C) $17x$ and $17y$ (D) $3xyz$ and $3xy$

(2) The degree of the monomial $19x^3y^2z$ is:

- (A) 3 (B) 19 (C) 6 (D) 5

(3) The coefficient of the monomial $19x^3y^2z$ is:

- (A) 3 (B) 19 (C) 6 (D) 5

(4) The number of terms in the polynomial $3x^2 - 5x + 2 + x^2 - 2x - 1$ is:

- (A) 3 (B) 5 (C) 6 (D) None of these

(5) The degree of the polynomial $4x^2y^3z + 2xy^2z^2 - 3xyz$ is:

- (A) 3 (B) 5 (C) 6 (D) None of these

(6) $(a+b)^2 =$

- (A) $a^2 + b^2$ (B) $a^2 + b^2 + ab$ (C) $a^2 + b^2 + 2ab$ (D) None of these

(7) $(a-b)^2 =$

- (A) $a^2 - b^2$ (B) $a^2 + b^2 - ab$ (C) $a^2 + b^2 - 2ab$ (D) None of these

(8) $(a+b)(a-b) =$

- (A) $a^2 - b^2$ (B) $a^2 + b^2 - 2ab$ (C) $a^2 + b^2 + 2ab$ (D) None of these

(9) $(2x^2y^3)(-3xy) =$

- (A) $-6x^3y^3$ (B) $6x^3y^4$ (C) $-6x^3y^4$ (D) None of these

(10) $(-1)^{111} =$

- (A) -1 (B) 1 (C) -111 (D) None of these

Question (3) : Complete the following table:

Polynomial	Leading coefficient	Number of terms	Degree of polynomial	Write in standard form
$3x^2 - 4x + x^3$				
$4x^5 + 3x^2 - 3x^5 + x^2$				
2				
x				
$(x-1)(x+2)$				

Question (4) : Simplify the following as much as possible:

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

Solution:

$$\begin{aligned} (3x^2 - 2x + 5) - (x^2 + 3x - 7) &= 3x^2 - 2x + 5 - x^2 + 3x + 7 \\ &= 2x^2 + x + 12 \end{aligned}$$

Where is the mistake in the above solution?

Question (5) : State whether each of the following is true (T) or false (F).

- (1) The degree of the monomial $3xy^2z$ is 2. ()
- (2) The leading coefficient of $17x^2 - 3x^9 + 4x^5$ is 17. ()
- (3) $P(x) = 4x^2 + 5x - 2$ is in standard form. ()
- (4) The number of terms in $P(x) = x^2 + 3x^2 + 2$ is 3. ()
- (5) $(4x^2y)(2xy^2) = 8x^3y^3$. ()
- (6) $3x^2y^5z$ and $3x^2y^5z$ are like terms. ()
- (7) $(4x - 3y)(4x + 3y) = 16x^2 + 9y^2$ ()

Question (6) : Give an example to show that:

- (1) $(a+b)^2 \neq a^2 + b^2$
- (2) $(a-b)^2 \neq a^2 - b^2$
- (3) $(a+b)^3 \neq a^3 + b^3$
- (4) $(a-b)^3 \neq a^3 - b^3$

Question (7) : If you are given two polynomials, one of degree (m) and the other of degree (n)

$$(m > n)$$

- (1) What is the degree of the sum?
- (2) What is the degree of the difference?
- (3) What is the degree of the product?

Question (8) : If you are given two polynomials of the same degree (m) and different leading coefficients

- (1) What is the degree of the sum?
- (2) What is the degree of the difference?
- (3) What is the degree of the product?

Question (9) : The width of a rectangle is 5 cm less than its length. If x represents the length, write an algebraic expression in terms of x that represents the perimeter of the rectangle.

Question (10) : The length of a rectangle is 8 meters more than its width. If x represents the width of the rectangle, write an algebraic expression in terms of x that represents its area.