ODM EDUCATIONAL GROUP
Changing your Tomorrow

PERIOD-3

MATHEMATICS

CHAPTER NUMBER :~ 2
CHAPTER NAME :~ POLYNOMIALS
SUB TOPIC :~ DIVISION OF POLYNOMIAL

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PREVIOUS KNOWLEDGE TEST

1. Find the values of the polynomials if x=1 :-

a.$5x^2 + 3x + 7$ b.$5x^3 - 2x^2 + 3x - 2$

LEARNING OUTCOME:~

Students will learn

a) Division of Polynomials.

EXERCISE-2.2

Question 1.

Find the value of the polynomial $5x - 4x2 + 3$ at

(i) $x = 0$

(ii) $x = -1$

(iii) $x = 2$

Solution:

1et $p(x) = 5x - 4x^2 + 3$

(i) $p(0) = 5(0) - 4(0)^2 + 3 = 0 - 0 + 3 = 3$

Thus, the value of $5x - 4x^2 + 3$ at $x = 0$ is 3.

(ii) $p(-1) = 5(-1) - 4(-1)^2 + 3$

$= -5x - 4x^2 + 3 = -9 + 3 = -6$

Thus, the value of $5x - 4x^2 + 3$ at $x = -1$ is -6.

(iii) $p(2) = 5(2) - 4(2)^2 + 3 = 10 - 4(4) + 3$

$= 10 - 16 + 3 = -3$

Thus, the value of $5x - 4x^2 + 3$ at $x = 2$ is -3.

Question-2.

Find p (0), p (1) and p (2) for each of the following polynomials.

(i) $p(y) = y^2 - y + 1$

(ii) $p(t) = 2 + 1 + 2t^2 - t^3$

Solution:

(i) Given that $p(y) = y^2 - y + 1$.

$\therefore P(0) = (0)^2 - 0 + 1 = 0 - 0 + 1 = 1$

$p(1) = (1)^2 - 1 + 1 = 1 - 1 + 1 = 1$

$p(2) = (2)^2 - 2 + 1 = 4 - 2 + 1 = 3$

(ii) Given that $p(t) = 2 + t + 2t^2 - t^3$

$\therefore p(0) = 2 + 0 + 2(0)^2 - (0)^3$

$= 2 + 0 + 0 - 0 = 2$

$P(1) = 2 + 1 + 2(1)^2 - (1)^3$

$= 2 + 1 + 2 - 1 = 4$

$p(2) = 2 + 2 + 2(2)^2 - (2)^3$

$= 2 + 2 + 8 - 8 = 4$

Question 3.

Verify whether the following are zeroes of the polynomial, indicated against them.

(iii) $p(x) = x^2 - 1, x = x - 1$

(v) $p(x) = x^2, x = 0$

Solution:

(iii) We have, $p(x) = x^2 - 1$

$\therefore p(1) = (1)^2 - 1 = 1 - 1 = 0$

Since, $p(1) = 0$, so $x = 1$ is a zero of $x^2 - 1$.

Also, $p(-1) = (-1)^2 - 1 = 1 - 1 = 0$

Since $p(-1) = 0$, so, $x = -1$, is also a zero of $x^2 - 1$.

(v) We have, $p(x) = x^2$

$\therefore p(0) = (0)^2 = 0$

Since, $p(0) = 0$, so, $x = 0$ is a zero of x^2.

Question-4

Find the zero of the polynomial in each of the following cases

(i) $p(x)=x+5$

(ii) $p(x) = x - 5$

Solution-

(i) We have, $p(x) = x + 5$. Since, $p(x) = 0$

$\Rightarrow x + 5 = 0$

$\Rightarrow x = -5$.

Thus, zero of $x + 5$ is -5.

(ii) We have, $p(x) = x - 5$.

Since, $p(x) = 0 \Rightarrow x - 5 = 0 \Rightarrow x = -5$

Thus, zero of $x - 5$ is 5.

(iii) We have, $p(x) = 2x + 5$. Since, $p(x) = 0$

$\Rightarrow 2x + 5 = 0$

$\Rightarrow 2x = -5$

$\Rightarrow x = -52$

Thus, zero of $2x + 5$ is -52 .

https://www.youtube.com/watch?v=YvC_r6UwhGI

"As great a genius as Archimedes could not invent analytical geometry, for the algebraic knowledge necessary for such as achievement was not available in his time…"

~*Nathan A. Court…*

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Step 1: Make sure the polynomial is written in descending order. If any terms are missing, use a zero to fill in the missing term (this will help with the spacing).

Step 2: Divide the term with the highest power inside the division symbol by the term with the highest power outside the division symbol.

Step 3: Multiply (or distribute) the answer obtained in the previous step by the polynomial in front of the division symbol.

Step 4: Subtract and bring down the next term.

Step 5: Repeat Steps 2, 3, and 4 until there are no more terms to bring down.

Step 6: Write the final answer. The term remaining after the last subtract step is the remainder and must be written as a fraction in the final answer.

Example 1 – $\dfrac{x^3-4x^2+2x-3}{x+2}$

Evaluation:

1.Divide p(x)= x+$3x^2$1 by g(x)= 1+x

2. Divide: $3x^4 - 4x^3 - 3x - 1$ by x − 1

HOMEWORK:-

EXERCISE - 2.3 QUESTION NUMBER 1.

AHA:~

1. Divide and find quotient and remainder .

p(x)=$x^4 - 3x^2 + 2x + 5$ by x-1.

2. Find remainder if p(y)= $y^3 + y^2 + 2y + 3$ is divided by y + 2.

THANKING YOU

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