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FUNDAMENTAL CONSEPTS

SUBJECT : MATHEMATICS

CHAPTER NUMBER:18

CHAPTER NAME :FUNDAMENTAL CONCEPTS

SUBTOPIC : Constants and Variables, Terms, Algebraic Expressions

PERIOD NO: 2

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Learning outcomes

- Students will be able to define constants and variables .
- Students will be able to identify terms ,like and unlike terms .
- Students will develop application skill.

PREVIOUS KNOWLEDGE TEST

1. For each of the following algebraic expressions, write a suitable statement in words:

(i) $b + 7a < 21$

(ii) $(16 + 2a) - x > 25$

(iii) $(3x + 12) - y < 3a$

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- Students will Learn types of polynomials in one variable and its degree with the help of a video .
- https://www.youtube.com/watch?v=Phi9_mtfnZs(3.50)

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Types of Polynomials

Linear —— $ax + b = 0$

Quadratic —— $ax^2 + bx + c = 0$

Cubic —— $ax^3 + bx^2 + cx + d = 0$

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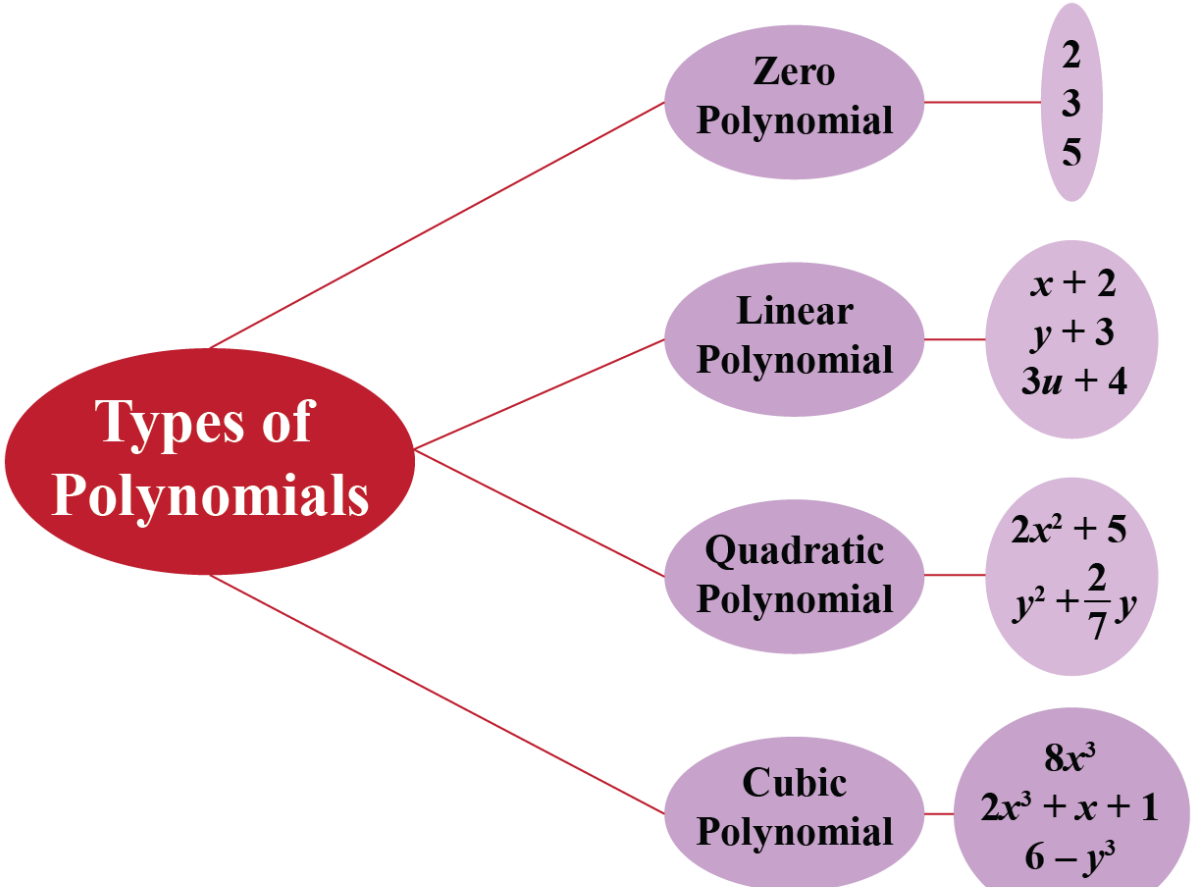

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Evaluation Question EX-10 E

1. Separate the constants and the variables from each of the following:

6, 4y, -3x, 5 / 4, (4 / 5)xy, az, 7p, 0, 9x / y, 3 / 4x, – xz / 3y

Solution: 6, 5 / 4and 0 are the constants

4y, -3x, (4 / 5)xy, az, 7p, 9x / y, 3 / 4x and – xz / 3y are the variables

2. Group the like terms together:

(i) 4x, -3y, -x, (2 / 3)x, (4 / 5)y and y.

(ii) (2 / 3) xy, -4yx, 2yz, (-2 / 3)yz, zy / 3 and yx.

(iii) $-ab^2$, b^2a^2, $7b^2a$, $-3a^2b^2$ and $2ab^2$

(iv) 5ax, -5by, by / 7, 7xa and 2ax / 3

Evaluation Question

Solution:

(i) 4x, -3y, -x, (2 / 3)x, (4 / 5)y and y.

Here, the like term are as follows

4x, -x, (2 / 3)x and -3y, (4 / 5)y, y

(ii) (2 / 3) xy, -4yx, 2yz, (-2 / 3)yz, zy / 3 and yx.

Here, the like terms are as follows

(2 / 3) xy, -4yx, yx and 2yz, (-2 / 3)yz, zy / 3

(iii) $-ab^2$, b^2a^2, $7b^2a$, $-3a^2b^2$ and $2ab^2$

Here, the like terms are as follows

$-ab^2$, $7b^2a$, $2ab^2$ and b^2a^2, $-3a^2b^2$

Evaluation Question

(iv) 5ax, -5by, by / 7, 7xa and 2ax / 3

Here, the like terms are as follows

5ax, 7xa, 2ax / 3 and – 5by, by / 7

3.State whether true or false:

(i) 16 is a constant and y is a variable but 16y is variable

(ii) 5x has two terms 5 and x

(iii) The expression 5 + x has two terms 5 and x

(iv) The expression $2x^2 + x$ is a trinomial

(v) $ax^2 + bx + c$ is a trinomial

Evaluation Question

(i) 16 is a constant and y is a variable but 16y is variable

The given statement is **true**

(ii) 5x has two terms 5 and x

The given statement is **false**

iii) The expression 5 + x has two terms 5 and x

The given statement is **true**

(iv) The expression $2x^2 + x$ is a trinomial

The given statement is **false**

(v) $ax^2 + bx + c$ is a trinomial

The given statement is **true**

Evaluation Question

4. State the number of terms in each of the following expressions:

(i) 2a – b

(ii) 3 × x + a / 2

(iii) 3x – x / p

(iv) a ÷ x × b + c

(v) 3x ÷ 2 + y + 4

(vi) xy ÷ 2

(vii) x + y ÷ a

(viii) 2x + y + 8 ÷ y

(ix) 2 × a + 3 ÷ b + 4

Evaluation Question

Solution:

(i) $2a - b$

The number of terms in given expression is two

(ii) $3 \times x + a / 2$

The number of terms in given expression is two

(iii) $3x - x / p$

The number of terms in given expression is two

Evaluation Question

(iv) $a \div x \times b + c$

The number of terms in given expression is two

(v) $3x \div 2 + y + 4$

The number of terms in given expression is three

(vi) $xy \div 2$

The number of terms in given expression is one

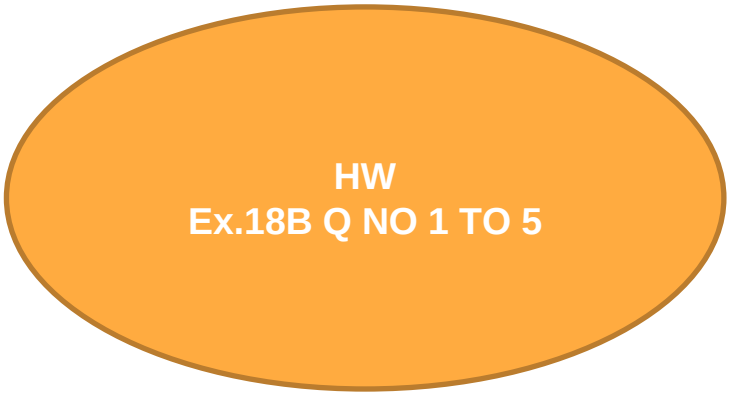
(vii) $x + y \div a$

The number of terms in given expression is two

Additional Homework

1. One pencil costs Rs 2 and one fountain pen costs Rs 15. What is the cost of x pencils and y fountain pens?

2. Think of a number. Multiply by 5. Add 6 to the result. Subtract y from this result. What is the result?



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