Pakistan School
Kingdom of Bahrain

# WELCOME CLASS 10TH (ARTS)

## Algebraic Formulas and Applications

We are going to start our  Online class today. I hope we all will enjoy and learn.

# Rules for class:

1) Be on time for all your classes.
2) Respect all the participants of the class.
3) Do not create any disturbance.
4) Pay attention to your teacher.
5) Raise hand if you have a question.
6) Enter the class with your actual name so that your attendance can be marked.
7) Ask any question relevant to topic taught only.
8) If any student question is not answered due to much participant don't mind please.

# Objectives

Students will be able to:

Find the value of the Algebraic Expression

## 1.1.8 Value of an Algebraic Expression

If we put a real number against a variable "$x$" in a polynomial $P(x)$, we get a real number. This real number is called value of $P(x)$. For $x = a, a \in R$, $P(x)$ will have the value $P(a)$.

For example:

If $P(x) = 4x^3 + 3x^2 + 5x + 1$, then find $P(x)$, for $(i)\ x = 1, (ii)\ x = 2$.

$$P(x) = 4x^3 + 3x^2 + 5x + 1$$

$$(i)\quad P(1) = 4(1)^3 + 3(1)^2 + 5(1) + 1$$
$$= 4 + 3 + 5 + 1$$
$$= 13$$

Thus $P(1) = 13$ and

$$(ii)\quad P(2) = 4(2)^3 + 3(2)^2 + 5(2) + 1$$
$$= 32 + 12 + 10 + 1 = 55$$

Thus $P(2) = 55$

## Solve:

**1.** If $P(x) = x^4 + 3x^2 - 5x + 9$, then find $P(x)$, for $x=0$, $x = 1$.

**Solution:**

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

$$P(0) = (0)^4 + 3(0)^2 - 5(0) + 9$$

$$= 0 + 0 - 0 + 9 = 9$$

$$P(1) = (1)^4 + 3(1)^2 - 5(1) + 9$$

$$= 1 + 3 - 5 + 9 = 8$$

**5** If $P(x) = \dfrac{x^2 - 5x + 6}{x + 1}$, then find P(1) and P (2).

**Solution:**

$$P(x) = \frac{x^2 - 5x + 6}{x + 1}$$

$$P(1) = \frac{x^2 - 5x + 6}{1 + 1} = \frac{1 - 5 + 6}{2} = \frac{7 - 5}{2} = \frac{2}{2} = 1$$

$$P(2) = \frac{(2)^2 - 5(2) + 6}{2 + 1} = \frac{4 - 10 + 6}{3} = \frac{10 - 10}{3} = \frac{0}{3} = 0$$

# Plenary

Solve

If $P(x) = 2x^3 + 2x^2 + x - 1$, then find $P(-2)$

# Solution

$$P(-2) = 2(-2)^3 + 2(-2)^2 + (-2) - 1$$
$$P(-2) = 2(-8) + 2(4) - 2 - 1$$
$$P(-2) = -16 + 8 - 2 - 1$$
$$P(-2) = -11$$

# Homework

Ex 1.1 Q4, 6