## Introduction to Polynomials

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=
$$

Since we are just adding, we can add in any order.

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=2 x+x+6+3
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.

## Introduction to Polynomials

- Wedefined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms
Example 2:

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 \mathrm{x}^{2}+5 x+1\right)+\left(\mathrm{x}^{2}-2\right)=2 x^{3}-2 \mathrm{x}^{2}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+\mathbf{5} \mathbf{x}+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+\mathbf{5} \mathbf{x}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+\mathbf{1}\right)+\left(x^{2}-\mathbf{2}\right)=2 x^{3}-2 x^{2}+5 x-\mathbf{1}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)-\left(x^{2}-2\right)=
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)-\left(x^{2}-2\right)=2 x^{3}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)-\left(x^{2}-2\right)=2 x^{3}-4 x^{2}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

$$
\left(2 x^{3}-3 x^{2}+\mathbf{5} \mathbf{x}+1\right)-\left(x^{2}-2\right)=2 x^{3}-4 x^{2}+\mathbf{5} \mathbf{x}
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)-\left(x^{2}-2\right)=2 x^{3}-4 x^{2}+5 x+3
$$

## Introduction to Polynomials

- We defined a Polynomial $P(x)$ to be a function of the form:

$$
P(x)=a_{n} x^{n}+a_{n-1} x^{n-1}+\cdots+a_{2} x^{2}+a_{1} x+a_{0}
$$

We will now look at how to Add two polynomials:

## Example 1:

$$
(2 x+6)+(x+3)=(2 x+x)+(6+3)=3 x+9
$$

Since we are just adding, we can add in any order.
So, let's rearrange to a more convenient order.
While we rarely write out these steps, we do them.
Even if we have larger polynomials, we add the same way.
We rearrange and add the terms of the same power, called like terms

## Example 2:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)+\left(x^{2}-2\right)=2 x^{3}-2 x^{2}+5 x-1
$$

We Subtract polynomials similarly, by subtracting like terms
Example 3:

$$
\left(2 x^{3}-3 x^{2}+5 x+1\right)-\left(x^{2}-2\right)=2 x^{3}-4 x^{2}+5 x+3
$$

