Summary Chapter 5: Polynomials and Polynomial Functions

Intermediate Algebra from OpenStax, a free and open online textbook

Section 1:

Terminology

- Monomials
- Binomials
- Polynomials
- Degree of a polynomial in one variable

Be Able To

- Determine the degree of a polynomial in one variable
- Add and subtract polynomials
- Evaluate a polynomial function for a given value
- Add and subtract polynomial functions

Section 2:

Terminology

- Exponent
- Base
- Product Rule for Exponents: $a^m \cdot a^n = a^{m+n}$
- Power-to-a-Power Rule for Exponents: $(a^m)^n = a^{mn}$
- Product-to-a-Power Rule for Exponents: $(ab)^m = a^m b^m$
- Quotient Rule for Exponents: $\frac{a^m}{a^n} = a^{m-n}$
- Negative Rule for Exponents: $a^{-n} = \frac{1}{a^n}$ where $a \neq 0$
- Integer Exponents: $a^0 = 1$
- Quotient-to-a-Power for Exponents:
- $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$

Be Able To

- Simplify expressions using Product Rule for Exponents
- Simplify expressions using Power-to-a-Power Rule for Exponent
- Simplify expressions using Product-to-a-Power Rule for Exponents
- Apply the concepts
- Simplify expressions using Quotient Rule for Exponents
- Simplify expressions using Negative rule for Exponents
- Simplify expressions using Integer Exponents Rule
- Simplify expression using Quotient-to-a-Power Rule for Exponents
- Multiplication of Number Written in Scientific Notation
- Division of Number Written in Scientific Notation
- Apply the concepts

Section 3:

Terminology

No additional definitions

Be Able To

- Multiply Monomials
- Multiply a polynomial by a monomial
- Multiply a binomial by binomial
- Multiply a polynomial by a polynomial
- Multiply special products
- Multiply polynomial functions

Be able to use the formulas

- Product of the Sum and Difference of the same two terms: $(a+b)(a-b)=a^2-b^2$
- Square of a Binomial: $(a+b)^2 = a^2+2ab+b^2$

$$(a-b)^2 = a^2-2ab+b^2$$

Section 4:

Terminology

No additional definitions

Be Able To

- Divide monomials
- Divide a polynomial by a monomial
- Divide polynomial by a polynomial (Long division
- Apply the concepts