

Section 3.3 Polynomial and Synthetic Division

Objective: In this lesson you learned how to use long division and synthetic division to divide polynomials by other polynomials.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Long division

Division Algorithm

Improper

Proper

Synthetic division

Remainder Theorem

Factor Theorem

I. Long Division of Polynomials (Pages 278–280)

Dividing polynomials is useful when . . .

What you should learn

How to use long division to divide polynomials by other polynomials

When dividing a polynomial $f(x)$ by another polynomial $d(x)$, if the remainder $r(x) = 0$, $d(x)$ _____ into $f(x)$.

The result of a division problem can be checked by . . .

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

II. Synthetic Division (Page 281)

Can synthetic division be used to divide a polynomial by $x^2 - 5$? Explain.

What you should learn

How to use synthetic division to divide polynomials by binomials of the form $(x - k)$

