MATH 1314

Chapter 3.3: Dividing Polynomials; Remainder And Factor Theorems

Divide 362 by 5.

Divide $x^2 + 10x + 21$ by $x + 3$.

Divide $4 - 5x - x^2 + 6x^3$ by $3x - 2$.

Division Algorithm:

$$f(x) = d(x)q(x) + r(x)$$

Dividend Divisor Quotient Remainder

Synthetic Division to Divide f(x) by (x – c):

Remainder Theorem:

If f(x) is divided by (x – c), the remainder is f(c).

Find the remainder when $f(x) = x^3 - 4x^2 + 5x + 3$ is divided by $x - 2$.

Factor Theorem with f(x):

If f(c) = 0, then (x – c) factors f(x). If (x – c) factors f(x), then f(c) = 0.

Find the zeros of $f(x) = x^2 + 2x - 35$.

The zeros of a function are 0, – 2, and 3. Find the equation.