Hmwk: pg 168 # 4, 6, 7ac, 8ac, 9ac, 10abde, 11, 12, 13, (17)

**Dividing Polynomials: Part 2**

When polynomials are divided, the original dividend can be obtained by multiplying the quotient by the divisor then adding the remainder.

 or 

**Practice**

Divide the following pairs of polynomials then verify your answer.

a)  b) 

**Synthetic Division**

Synthetic division is a faster method for dividing polynomials by a binomial by using a series of additions and multiplications.

Example 1

Use synthetic division to simplify the following.

a)  b) 

Synthetic division is often performed only with binomials in the form "x - a"; if there is a coefficient other than 1 in front of the x then it needs to be factored out of both terms first.

Consider the following:



The factors of the divisor 15 are 3 and 5. So, another way to perform this calculation above would be to write:



A similar approach can be used to divide polynomials by a binomial of the form

"bx - a". For these cases, we first factor out the constant b. Then we divide by the new binomial and finish by dividing this answer by the constant b.

Example 2

Use synthetic division to simplify the following.

a)  b)  c) 