Vocabulary: Dividing Polynomials Using

Synthetic Division



**Vocabulary**

* Remainder Theorem – a theorem that states that, when the polynomial *P*(*x*) is divided by the binomial (*x* – *a*), the remainder is equal to *P*(*a*).
	+ For example, when *P*(*x*) = *x*2 + 2*x* + 1 is divided by (*x* – 1), the remainder is *P*(1), or 12 + 2 • 1 + 1 = 4.
* Synthetic division – a shortcut to divide a polynomial by a binomial of the form (*x* – *a*).
	+ For example, here’s how to divide (2*x*2 + *x* – 15) by (*x* + 3), using both long division and synthetic division:

 **Long division Synthetic division**



–3 2 1 –15

 –6 15

 2 –5 0