Chapter 5 Section 3: Polynomial Division (Long Division)

Let’s refresh our memory of how to do long division by dividing a large number by a much smaller number.

**Example 1:** Divide 7683 by 6.

In the same way we divided a large number by a smaller number, we can divide a large polynomial by a small polynomial.

**Example 2:** Divide using polynomial long division:

(a) \((x^3 - x^2 - 2x + 8) \div (x - 1)\)  
(b) \((x^3 + x^2 - 7x + 2) \div (x^2 + 3x - 1)\)

(c) \((4x^4 + 5x - 4) \div (x^2 - 3x - 2)\)