

Here are some guidelines for doing synthetic division of a polynomial as we saw in class:

Step 1: To set up the problem set the denominator equal to zero to find the number to put in the division box. If the coefficient of the x term is 1, then we can just change the sign of the constant part as we saw in class. Make sure the numerator is written from highest degree to lowest degree! This is important to find the coefficients correctly. Remember that if any variables are missing you must put a zero to fill in the missing terms coefficient. List only the coefficients in the first row.

Step 2: Once the problem is set up, bring the first number straight down.

Step 3: Multiply the number in the division box with the number under the bar in row 3 and put the new number in the next column (center row, row 2).

Step 4: Add the two numbers together and write the result in the bottom of the row..

Step 5 Repeat steps 3 and 4 until you reach the end of the problem.

Step 6: The final answer is made up of the numbers in the bottom row with the last number in the right box being the remainder. The variables or x s start off one power less than the original denominator and go down one with each term until we get to the constant term.

Practice the homework problems and extra questions in the notes with synthetic division. Remember, we can only use this method when the binomial we are dividing by is linear!