

LTPALB/ How do I divide polynomials?

#2 Synthetic Division 4/27

$$\text{Ex 1: } \frac{x^3 + x^2 - 8x - 12}{x - 3}$$

$$\begin{array}{r|rrrr} 3 & 1 & 1 & -8 & -12 \\ & \downarrow & & & \\ & 3 & 12 & 12 & \\ \hline & 1 & 4 & 4 & 0 \end{array}$$

answer =  $1x^2 + 4x + 4$  Remainder = 0

Ex 2:

$$\frac{2x^5 - x^3 + 3x^2 - 2x + 7}{x - 3}$$

$$\begin{array}{r|rrrrrr} 3 & 2 & 0 & -1 & 3 & -2 & 7 \\ & \downarrow & & & & & \\ & 6 & 18 & 51 & 162 & 486 & \\ \hline & 2 & 6 & 17 & 54 & 160 & 487 \end{array}$$

$$2x^4 + 6x^3 + 17x^2 + 54x + 160 + \frac{487}{x-3}$$