I can divide polynomials using synthetic division.

Divide using long division: $\dfrac{3x^3 + 4x^2 - 30x + 8}{x + 4}$

Synthetic division: another method (quicker) for dividing, BUT it has it's limitations

$\dfrac{3x^3 + 4x^2 - 30x + 8}{x + 4}$

Process: **Steps:**

Why does synthetic division work?

https://www.khanacademy.org/math/algebra2/arithmetic-with-polynomials/synthetic-division-of-polynomials/v/why-synthetic-division-works

Practice:

1. $\dfrac{2x^3 - 10x^2 + 9x + 15}{x - 3}$

2. $\dfrac{x^3 - 3x^2 - 7x + 6}{x + 2}$

I can divide polynomials using synthetic division.

3. $\dfrac{2x^4 - x^3 - 4x^2 - 8}{x - 2}$

4. $\dfrac{3x^3 - 81x + 30}{x - 5}$

5. $\dfrac{6x^3 + 7x^2 + x + 1}{2x + 3}$

6. $\dfrac{x^3 + 2x^2 - 4x + 1}{x^2 + x - 2}$

When is it best to use:	
Long Division	Synthetic Division