

Is 
$$x + 4$$
 a factor of  $2x^3 - 12x^2 + 8x - 20$ 

What must be true for a number to be a factor of another number?

There must be NO remainder when you find their quotient.

remainder isn't zero

$$2x^{2}-20x+88$$

$$X+4\left[2x^{3}-12x^{2}+8x-20\right]$$

$$-2x^{3}+8x^{2}$$

$$-20x^{2}+8x$$

$$-20x^{2}-80x$$

$$-88x+352$$

$$-372$$

$$X+4$$
Is NOT a factor because the

In polynomial division the largest remainder you can get is a degree that is one less than the divisor.

You can now finish Hwk #25

Sec 6-3

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**Due tomorrow** 

Problems 3-5, 8-10, 38

## Now for some **FAKE** division.

## Synthetic Division

Uses the zero of the divisor.
By reversing the sign of the divisor you can ADD throughout the process instead of subtracting.

Works only when the divisor is linear and the leading coefficient = 1

Meaning either  $\div(x + a)$  or  $\div(x - a)$ 

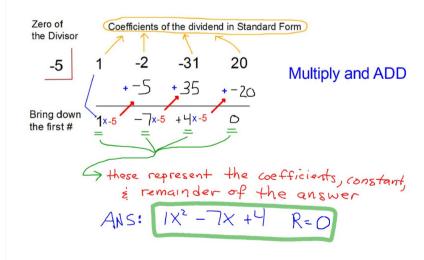
## **Synthetic**

 (of a substance) made by chemical synthesis, especially to imitate a natural product. "synthetic rubber"

synonyms: synthetic · fake · false · imitation · mock · simulated · faux · ersatz · [more]

Natural	Synthetic
(From Nature)	( <i>Man-Made</i> )
• Fuel- Coal  • Fiber- Cotton	• Fuel- Syngas • Fiber- Nylon

$$\frac{x^3 - 2x^2 - 31x + 20}{x + 5}$$



$$2. \ \ \frac{2x^4 + 18x^3 + 34x^2 + 43x + 10}{x + 7}$$