Polynomial Operation Review

Monomial Rules:

$x^a \times x^b = x^{a+b}$

$(x^a)^b = x^{ab}$

$x^a \div x^b = x^{a-b}$

$(mn)^a = m^a n^a$

$x^0 = 1$

$x^{-n} = \frac{1}{x^n}$

	x	÷	$(\ )^n$	+ and −
Exponent	add	Subtract	multiply	Keep
Coefficient	multiply	divide	raise to the Power	+ or −
Base	Keep	Keep	Keep	Keep

* Always keep the base.
* Always do operation on the coefficients
* Exponent is always a step behind the operation

MULTIPLICATION / DIVISION:

1. (monomial)(monomial) - multiply coefficients add exponents
2. (monomial)(polynomial) - distribute
3. (binomial)(binomial) - FOIL
4. (binomial)(polynomial) - SUPERFOIL
5. $(\text{binomial})^2$ - (binomial)(binomial) → FOIL
   shortcut: square the 1st + double the product + square the last
6. $(a+b)(a-b) = a^2 - b^2$
7. $\frac{\text{polynomial}}{\text{monomial}}$ - seperate and divide

Discuss how you would simplify the expression:

$(3x+1)(x^2+2x-1)$
(binomial)(trinomial)
"Superfoil"

$3x(x^2+2x-1)$
distribute

$(3x+1)(2x-1)$
(binomial)(binomial)
FOIL

$(3x+1) - (2x-1)$
minus
drop ( ) Keep
drop ( ) change

$3x+1(x^2+2x+1)$
distribute the 1

$(3x+1)(3x-1)$
FOIL or a^2-b^2 shortcut

HOMEWORK

Mixed Polynomial Operations Worksheet