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Multiplying Polynomials

F O I L

Example 1: Multiply $(4r^3s^4)(6r^5s^6)$

Example 2: Multiply $(9x^2y)(-2x^3yz^6)$

Monomial × Monomial

Remember!

Law of Exponents- Product Property

Rule:
$a^m \cdot a^n =$

Example:
$x^4 \cdot x^6 =$

Example 7: Multiply $(x + 2)(x + 5)$

Example 8: Multiply $(3a + b)(a – 2b)$

Example 9: Multiply $(d + 5)(d – 5)$

Binomial x Binomial

Example 3: Multiply $3m(5m^2 + 2m)$

Example 4: Multiply $7g(g^2 + 5g – 3)$

Example 5: Multiply $-5a^2b(3a^4b^3 + 6a^2b^3)$

Example 6: Multiply $-5y^3(y^2 + 6y – 8)$

Monomial x Polynomial

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Multiplying Polynomials

FOIL

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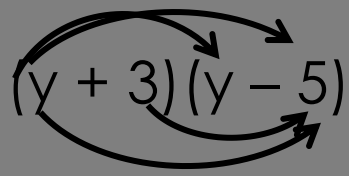


$y^2 - 5y + 3y - 15$

$y^2 - 2y - 15$

Example 1: Multiply $(4r^3s^4)(6r^5s^6)$

$(4 \cdot 6)(r^3 \cdot r^5)(s^4 \cdot s^6)$

$24r^8s^{10}$

Example 2: Multiply $(9x^2y)(-2x^3yz^6)$

$(9 \cdot -2)(x^2 \cdot x^3)(y \cdot y)(z^6)$

$-18x^5y^2z^6$

Monomial x Monomial

Remember!

Law of Exponents- Product Property

Rule:
$a^m \cdot a^n = a^{m+n}$

Example:
$x^4 \cdot x^6 = x^{10}$

Example 7: Multiply $(x + 2)(x + 5)$

$x^2 + 5x + 2x + 10$
$x^2 + 7x + 10$

Example 8: Multiply $(3a + b)(a - 2b)$

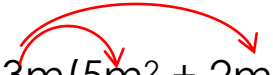
$3a^2 - 6ab + ab - 2b^2$
$3a^2 - 5ab - 2b^2$

Example 9: Multiply $(d + 5)(d - 5)$

$d^2 + 5d - 5d - 25$
$d^2 - 25$

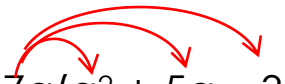
Binomial x Binomial

Example 3: Multiply $3m(5m^2 + 2m)$



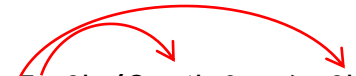
$3m(5m^2) + 3m(2m)$
$15m^3 + 6m^2$

Example 4: Multiply $7g(g^2 + 5g - 3)$



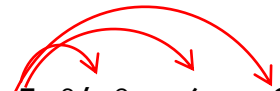
$7g(g^2) + 7g(5g) + 7g(-3)$
$7g^3 + 35g^2 - 21g$

Example 5: Multiply $-5a^2b(3a^4b^3 + 6a^2b^3)$



$-5a^2b(3a^4b^3) + -5a^2b(6a^2b^3)$
$-15a^6b^4 - 30a^4b^4$

Example 6: Multiply $-5y^3(y^2 + 6y - 8)$



$-5y^3(y^2) - 5y^3(6y) - 5y^3(-8)$
$-5y^5 - 30y^4 + 40y^3$

Monomial x Polynomial

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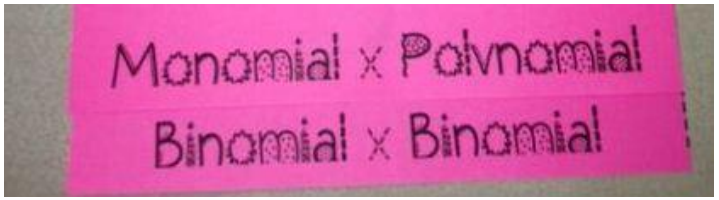
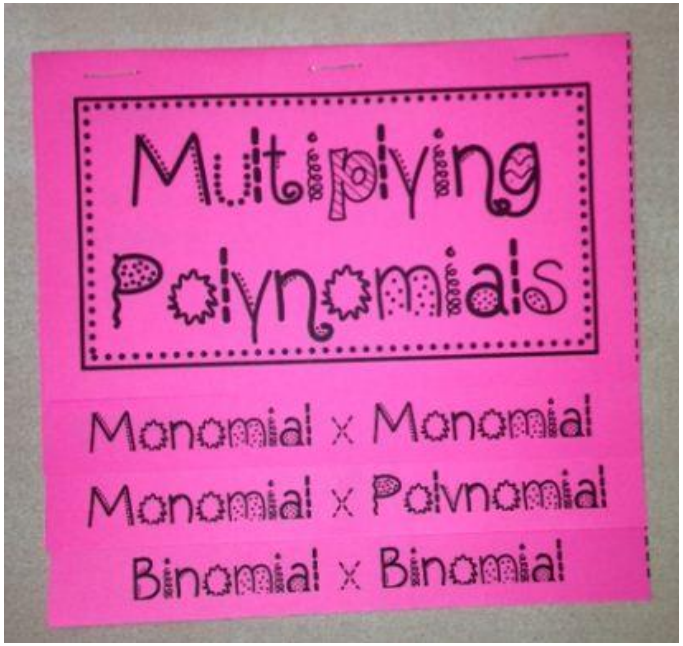
Directions:

Step 1: Print the pages front to back (flip pages along the long side). The information should be facing in opposite directions.

Step 2: Cut along the dotted line, creating two pieces.

Step 3: Line up the pieces as shown:



Step 4: Fold over the top half of both pieces and secure with a few staples. The final product should look like this: