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$\qquad$ Date: $\qquad$

## 14-4, 14-5 Multiplying Polynomials

*Remember:

1) When we are multiplying integers, variables, or other terms, if they have

$$
\text { Different signs } \rightarrow \text { Same signs } \rightarrow \text { ___ }
$$

$9 *-2=$ $\qquad$

$$
-9 *-2=
$$

$\qquad$
2) When we multiply terms with exponents, we add the exponents of the like terms.

$$
a^{5} * a^{4}=\square \quad b^{7} * b^{-2}=
$$

Ex. 1: Multiply using Distributive Property. Then, simplify if needed.
A. $\left(9 x^{5} y^{7}\right)\left(-2 x^{4} y^{4}\right)$
D. $8 y\left(5 x^{2}-2 y\right)$
B. $\left(-4 x^{3} y^{2}\right)\left(-7 x^{5} y^{3}\right)$
E. $-7 x^{9} y^{4}\left(6 x^{3} y+x^{2}-4 x y^{5}-8\right)$
C. $3\left(5 x+2 y^{2}\right)$
F. $-4 x^{2} y^{3}\left(-5 x y^{4}+3 x^{4}\right)-x^{3} y^{7}+8$

When multiplying a binomial by a binomial, we still use the distributive property. However, we have a method that helps us keep our work organized called the
$\qquad$ method.

Ex. 2: Multiply using the foil method.
A. $(x+3)(x+2)$
C. $(7 m+2)(3 m-8)$
E. $(a-2)(b-8)$
B. $(2 y+1)(5 y+3)$
D. $(3 c-5 a)(2 c+4 d)$

## Special Products:

1) $(a+b)^{2}$
2) $(a-b)^{2}$
3) $(a+b)(a-b)$

Ex. 3: Multiply using the foil method and the trick using the pattern with the special products.
A. $(x+3)^{2}$
B. $(y-4)^{2}$
C. $(x+7)(x-7)$

