Name _____ Date _____

Factoring Out a Common Factor

Example

×	☐	☐
3	$6x$	9

The area of a rectangle is $6x + 9$ and one side is 3. What is the other side?

$6x + 9 = 3 \times 2x + 3 \times 3 = 3(2x + 3)$

Check by multiplying: $3(2x + 3) = 6x + 9$. ✓

Remember

Factoring out is the distributive law read from right to left: $ab + ac = a(b + c)$. We factor out the **greatest** common factor (number and letters), and always check the result by multiplying.

1 ON YOUR OWN Find the greatest common factor and factor it out.

Expression	Common factor	Factorised	Check by multiplying
$6x + 12$			✓ / ×
$10a - 15$			✓ / ×
$x^2 + 5x$			✓ / ×
$4y^2 - 6y$			✓ / ×
$3ab + 6a$			✓ / ×
$-2x - 8$			✓ / ×

Names (pair) _____ Date _____

2 IN PAIRS **Is it factorised completely?** For each pair circle the complete factorisation and explain why the other is not.

$4x + 8 = 2(2x + 4)$	$4x + 8 = 4(x + 2)$
$6a^2 + 9a = 3(2a^2 + 3a)$	$6a^2 + 9a = 3a(2a + 3)$

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3 ON YOUR OWN Factor out the common factor.

$12a^2b - 8ab^2 =$ ☐

$5x^3 + 10x^2 - 15x =$ ☐

$x(a + b) + 2(a + b) =$ ☐

4 ON YOUR OWN **The missing side.** You know the area of a rectangle and one side. What is the other side?

$A = 3x + 12$, side 3: ☐ $A = x^2 + 7x$, side x: ☐

5 ON YOUR OWN Factor out and check by multiplying.

$9a^2 - 6a =$ ☐ $14xy + 21y =$ ☐

$-4a - 6 =$ ☐

★ ON YOUR OWN **Exit card.** Factor out: $8x - 12 =$ ☐