Name _____ Date _____

Equivalent Expressions

Example

$2x + 3 + x + 1 = 3x + 4$: add the terms with x and add the numbers.

Check with $x = 2$: left $4 + 3 + 2 + 1 = 10$, right $6 + 4 = 10$. ✓

Remember

Like terms have the same letter part ($3x$ and $-5x$, or $2a^2$ and a^2), and only they can be added: $3x + 2x = 5x$. But $3x + 2$ stays $3x + 2$, and $2a + 3b$ is not $5ab$. Equivalent expressions give the same value for **every** number.

1 ON YOUR OWN Simplify by collecting like terms.

$4x + 3x =$ ☐

$5a - 2a + a =$ ☐

$3x + 4 - x + 2 =$ ☐

$2a + 3b - a + b =$ ☐

$x^2 + 2x + 3x^2 - x =$ ☐

$7 - 2y + 3y - 5 =$ ☐

2 IN PAIRS **True or false?** Check by substituting, e.g. $x = 2$, $a = 1$, $b = 3$. Correct the false ones.

$2a + 3b = 5ab$ **true** / **false**

Correction: _____

$x + x = x^2$ **true** / **false**

Correction: _____

$4x - x = 4$ **true** / **false**

Correction: _____

Names (group) _____ Date _____

3 IN A GROUP **Match the equivalent expressions.** For each expression on the left find an equivalent one on the right and check by substituting.

A $2(x+1)$	**1** $3x$
B $x+x+x$	**2** $2x+4$
C $4x-x+2$	**3** $4x+2$
D $(x+1)+(x+3)$	**4** $2x+2$
E $3x+2+x$	**5** $3x+2$

A → ☐ B → ☐ C → ☐ D → ☐ E → ☐

4 ON YOUR OWN Simplify and check by substituting $x=1$.

$5x-3-2x+8=$ ☐

$x^2-4x+2x^2+x-1=$ ☐

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Mode **Free**: in the *Display* menu choose the letters x, y, z, then build $2x+3-x+1$, remove the zero pairs and read the simplified expression. Use *Substitute* to check the value.

★ ON YOUR OWN **Exit card.** Simplify: $5y-2+y+7=$ ☐