Name _____ Date _____

Adding Algebraic Fractions: Simple Denominators

Example

Numbers: $\frac{1}{6}+\frac{3}{4}=\frac{2}{12}+\frac{9}{12}=\frac{11}{12}$

Expressions: $\frac{1}{x}+\frac{1}{2x}=\frac{2}{2x}+\frac{1}{2x}=\frac{3}{2x}$

Remember

Fractions with the same denominator are added by adding the numerators. With different denominators we **expand** each fraction to a common denominator. When subtracting, put the numerator in **brackets**: $\frac{a}{c}-\frac{b+1}{c}=\frac{a-(b+1)}{c}$.

1 ON YOUR OWN The same denominators.

$\frac{2x}{x+1}+\frac{2}{x+1}=$ ☐ $\quad\quad \frac{a+3}{a}-\frac{a-1}{a}=$ ☐

$\frac{3x}{x-2}-\frac{6}{x-2}=$ ☐ $\quad\quad \frac{x+5}{2x}-\frac{x-1}{2x}=$ ☐

2 ON YOUR OWN Different but simple denominators.

$\frac{1}{x}+\frac{1}{2x}=$ ☐ $\quad\quad \frac{2}{a}-\frac{1}{3a}=$ ☐

$\frac{x}{2}+\frac{x}{3}=$ ☐ $\quad\quad \frac{1}{x}+\frac{1}{y}=$ ☐

Names (pair) _____ Date _____

3 IN PAIRS **A common mistake.** Nina says $\frac{1}{a} + \frac{1}{b} = \frac{2}{a+b}$. Check with $a = 1, b = 1$ and work it out correctly.

$\frac{1}{a} + \frac{1}{b} =$ ☐

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4 IN A GROUP **Working together.** Ana paints a wall on her own in 3 hours, and Ivo in 6 hours. What part of the wall do they paint together in 1 hour? How many hours do they need together?

$\frac{1}{3} + \frac{1}{6} =$ ☐ → ☐ hours

In general, for a and b hours: $\frac{1}{a} + \frac{1}{b} =$ ☐

5 ON YOUR OWN Work out.

$\frac{3}{2a} + \frac{1}{4a} =$ ☐

$\frac{x}{3} - \frac{x}{6} =$ ☐

$\frac{2}{x} + 3 =$ ☐

★ ON YOUR OWN **Exit card.** $\frac{1}{x} - \frac{1}{3x} =$ ☐