

## SIMPLIFYING EXPRESSIONS

combining like terms

↳

$$5 + 7 = \underline{\quad}$$

$$5x + 7x = \underline{\quad}$$

$$5a + 7a = \underline{\quad}$$

$$\frac{5}{7} + \frac{7}{7} = \underline{\quad}$$

↳

example 1:  $\frac{7}{2} + \frac{4}{2} + \frac{3}{2} = \underline{\quad}$

We can add these terms together because they are **LIKE** terms.

example 2:  $\frac{3}{4} + \frac{2}{5}$

these are **NOT** like terms,  
so we must **make**  
them like terms.

We need to find the LCD

↳

$$\text{LCD} = \underline{\quad}$$

$$\frac{3}{4} \left( \frac{5}{5} \right) + \frac{2}{5} \left( \frac{4}{4} \right)$$

$$= \frac{15}{20} + \frac{8}{20}$$

$$= \frac{23}{20}$$

example 3:  $4x - 3 - 2$

If we rewrite this expression so that everything is being added, we can add in any order.

$$\begin{aligned} &4x - 3 - 2 \\ &= 4x + (-3) + (-2) \\ &= 4x + (-5) = 4x - 5 \end{aligned}$$

We cannot combine these two terms since they are NOT like terms.

example 4:  $-3 + 2x - 5 - x$

$$\begin{aligned} &= -3 + 2x + (-5) + (-x) \\ &= -8 + x \end{aligned}$$

OR

$$= x - 8$$

At times we must use the distributive property in order to simplify expressions.

example 5:

$$\begin{aligned} &-3 + 4(x+2) - 7x \\ &= -3 + 4(x) + 4(2) - 7x \\ &= -3 + 4x + 8 - 7x \\ &= 5 - 3x \quad \text{OR} \quad -3x + 5 \end{aligned}$$

example 6: Translate the following phrase into a mathematical expression using  $x$  as the variable, then simplify the expression.

"A number multiplied by  $-3$ , subtracted from the sum of  $9$  and  $4$  times the number."

$$\begin{aligned} & (9 + 4x) - x(-3) \\ & = 9 + 4x + 3x \\ & = 9 + 7x \end{aligned}$$

## SIMPLIFYING EXPRESSIONS Practice Problems

Simplify each expression:

1.  $7 - 4x + 3x - 10 + 2x$

2.  $7 - 9(x - 4) + 2(x - 1)$

3. Translate the following phrase into a mathematical expression using  $x$  as the variable, then simplify the expression.

"The sum of 8 and 5 times a number subtracted from twice the number."