**Adding and Subtracting Fractions with Like Denominators**

The names of what we are adding or subtracting , the denominators (bottom), must be the same.  Add or subtract only the numerators (top), and keep that same denominator.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Example:**    | 58 |  +  | 28 |  =  | 78 | . |

"5 eighths + 2 eighths = 7 eighths."



**Adding and Subtracting Fractions with Unlike Denominators**

How do we add fractions with different denominators?

|  |  |  |
| --- | --- | --- |
| 23 |   +   | 14 |

**Example:**

Convert each fraction to an equivalent fraction with the *same* denominator.

What number should we choose as the common denominator?

Choose the lowest common multiple (LCM) of the original denominators.

3,6,9,12

4,8,12

**→** The LCM of 3 and 4 is 12.

We will convert each fraction to an equivalent fraction with denominator 12.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 23 |  +  | 14 |  =  |  8 12 |  +  |  3 12 |
|   |
|   |   |   |  =  | 1112 | .  |
|  |  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| We converted   | 23 |  to  |  8 12 |   by saying, "3 goes into 12 *four* times.  Four times |

2 is 8." (In that way, we multiplied both 2 and 3 by the same number, namely 4)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| We converted   | 14 |  to  |  3 12 |   by saying, "4 goes into 12 *three* times.  Three  |

times 1 is 3."  (We multiplied both 1 and 4 by 3.)