Addition and Subtraction of Rational Algebraic Expressions

Jonathan R. Bacolod

Sauyo High School

What are Similar and Dissimilar Fractions?

Similar fractions are fractions that have the same denominator.
Dissimilar fractions are fractions that have different denominators.

Examples

$\frac{3}{8}$ and $\frac{5}{8}$:

Examples

$\frac{3}{8}$ and $\frac{5}{8}$: Similar fractions

Examples

$\frac{3}{8}$ and $\frac{5}{8}$: Similar fractions

$\frac{4}{5}$ and $\frac{5}{4}$:

Examples

$\frac{3}{8}$ and $\frac{5}{8}$: Similar fractions

$\frac{4}{5}$ and $\frac{5}{4}$: Dissimilar fractions

Examples

$\frac{3}{8}$ and $\frac{5}{8}$: Similar fractions

$\frac{4}{5}$ and $\frac{5}{4}$: Dissimilar fractions

$\frac{3x}{x^2-1}$ and $\frac{5x}{(x+1)(x-1)}$:

Examples

$\frac{3}{8}$ and $\frac{5}{8}$: Similar fractions

$\frac{4}{5}$ and $\frac{5}{4}$: Dissimilar fractions

$\frac{3x}{x^2-1}$ and $\frac{5x}{(x+1)(x-1)}$: Similar fractions

How to Add or Subtract Similar Rational Algebraic Expressions?

If a, b, and c are any real numbers and $b \neq 0$, then

$$\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b} \text{ and } \frac{a}{b} - \frac{c}{b} = \frac{a-c}{b}$$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.
2. Copy the common denominator.

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.
2. Copy the common denominator.
3. Express the answer in simplest form.

Example 1

Add $\dfrac{4x-5}{6x^2+30x} + \dfrac{x+30}{6x^2+30x}$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5}{}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{}$$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.
2. Copy the common denominator.

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.
2. Copy the common denominator.
3. Express the answer in simplest form.

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x}{6x^2+30x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\quad 5(x$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5(x+5)}{}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5(x+5)}{6x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5(x+5)}{6x(x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5(x+5)}{6x(x+5)}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5\cancel{(x+5)}^{1}}{6x(x+5)}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5\cancel{(x+5)}^{1}}{6x\cancel{(x+5)}^{1}}=\frac{5}{6x}$$

Example 1

$$\frac{4x-5}{6x^2+30x}+\frac{x+30}{6x^2+30x}$$

$$=\frac{4x-5+x+30}{6x^2+30x}$$

$$=\frac{5x+25}{6x^2+30x}$$

$$=\frac{5\cancel{(x+5)}^{1}}{6x\cancel{(x+5)}^{1}}=\frac{5}{6x}$$ ✓

Example 2

Subtract $\dfrac{4x-3}{x^2-x-20} - \dfrac{3x-7}{x^2-x-20}$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3}{}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{}$$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.
2. Copy the common denominator.

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

How to Add or Subtract Similar Rational Algebraic Expressions?

1. Add or subtract the numerators.
2. Copy the common denominator.
3. Express the answer in simplest form.

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3}{}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x}{}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x}{}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{\qquad\qquad}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{\qquad\qquad}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(\quad)(\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x\quad\quad)(x\quad\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20} \qquad (\quad)(\quad)$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x\quad)(x\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20} \qquad (\quad)(\quad) = -20$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x\quad)(x\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$(\quad)(\quad) = -20$$
$$(\quad) + (\quad)$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x\quad)(x\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$(\quad)(\quad) = -20$$
$$(\quad) + (\quad) = -1$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x\quad)(x\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$(-5)(4) = -20$$
$$(-5)+(4) = -1$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x\quad\quad)(x\quad\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$(-5)(4) = -20$$
$$(-5)+(4) = -1$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x-5)(x\quad)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{x+4}{(x-5)(x+4)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{\cancel{x+4}^{1}}{(x-5)(x+4)}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{\cancel{x+4}^{1}}{(x-5)\cancel{(x+4)}^{1}}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{\cancel{x+4}^{1}}{(x-5)\cancel{(x+4)}^{1}} = \frac{1}{\quad}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{\cancel{x+4}^{\,1}}{(x-5)\cancel{(x+4)}^{\,1}} = \frac{1}{x-5}$$

Example 2

$$\frac{4x-3}{x^2-x-20} - \frac{3x-7}{x^2-x-20}$$

$$= \frac{4x-3-(3x-7)}{x^2-x-20}$$

$$= \frac{4x-3-3x+7}{x^2-x-20}$$

$$= \frac{x+4}{x^2-x-20} = \frac{\cancel{x+4}^{\,1}}{(x-5)\cancel{(x+4)}^{\,1}} = \frac{1}{x-5}$$ ✓

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.
4. Perform the indicated operations.

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.
4. Perform the indicated operations.
5. Express the answer in simplest form.

Example 1

Add $\frac{y^2+y}{y^2}+\frac{y-1}{y+1}$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.

Example 1

$$\frac{y^2 + y}{y^2} + \frac{y - 1}{y + 1}$$

To Factor a Binomial:

1. Factor out the GCMF.

To Factor a Binomial:

1. Factor out the GCMF.
2. Check if it is a difference of two squares.

To Factor a Binomial:

1. Factor out the GCMF.
2. Check if it is a difference of two squares.
3. Check if it is a sum or difference of two cubes.

Example 1

$$\frac{y^2 + y}{y^2} + \frac{y - 1}{y + 1}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=y$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=y(y$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{y(y+1)}{}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{y(y+1)}{y^2}+$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{y(y+1)}{y^2}+\frac{y-1}{\qquad}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{y(y+1)}{y^2}+\frac{y-1}{y+1}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{y^2}+\frac{y-1}{y+1}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\underline{\frac{y+1}{}}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$y \quad =$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$y \quad = \quad y$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$$y = y$$

$$y+1 =$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$$y = y$$

$$y+1 = y+1$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$$\begin{array}{rcl} y & = & y \\ y+1 & = & y+1 \\ \hline \text{LCM} & = & \end{array}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$$\begin{array}{rcl} y & = & y \\ y+1 & = & y+1 \\ \hline \text{LCM} & = & y \end{array}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$$\begin{array}{rcl} y & = & y \\ y+1 & = & y+1 \\ \hline \text{LCM} & = & y\ (y+1) \end{array}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}$$

Find the LCM:

$$\begin{array}{rcl} y & = & y \\ y+1 & = & y+1 \\ \hline \text{LCM} & = & y\ (y+1) \end{array}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{\quad}{y(y+1)}$$

Find the LCM:

$$\begin{array}{rcl} y & = & y \\ y+1 & = & y+1 \\ \hline \text{LCM} & = & y\ (y+1) \end{array}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{\qquad\qquad}{y(y+1)}$$

$$y+1$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{}{y(y+1)}$$

y

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.
4. Perform the indicated operations.

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=(y+1)(y+1)$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=(y+1)(y+1)+$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=y^2$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=y^2+y$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=y^2+y+y$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=y^2+y+y+1$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=y^2+y+y+1+y^2$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y}{}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.
4. Perform the indicated operations.
5. Express the answer in simplest form.

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)} \qquad (2y^2)$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)} \qquad (2y^2)(1)$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$(2y^2)(1)=2y^2$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$(2y^2)(1)=2y^2$

$2y^2=(\quad)(\quad)$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$(2y^2)(1)=2y^2$

$2y^2=(2y)$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}^{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$(2y^2)(1)=2y^2$

$2y^2=(2y)(y)$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$(2y^2)(1)=2y^2$

$2y^2=(2y)(y)$

$2y^2=(-2y)$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$(2y^2)(1)=2y^2$

$2y^2=(2y)(y)$

$2y^2=(-2y)(-y)$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\frac{2y^2+y+1}{y(y+1)}$$

Example 1

$$\frac{y^2+y}{y^2}+\frac{y-1}{y+1}=\frac{\cancel{y}^{1}(y+1)}{\cancel{y^2}_{y}}+\frac{y-1}{y+1}$$

$$=\frac{y+1}{y}+\frac{y-1}{y+1}=\frac{(y+1)(y+1)}{y(y+1)}+\frac{y(y-1)}{y(y+1)}$$

$$=\frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$$

$$=\frac{y^2+y+y+1+y^2-y}{y(y+1)}=\boxed{\frac{2y^2+y+1}{y(y+1)}}$$ ✓

Example 2

Subtract $\dfrac{2x}{x^2 - 4x + 4} - \dfrac{1}{x - 2}$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.

Example 2

$$\frac{2x}{x^2 - 4x + 4} - \frac{1}{x - 2}$$

Example 2

$$\frac{2x}{x^2 - 4x + 4} - \frac{1}{x - 2} = \frac{2x}{\quad}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2}$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$

$\sqrt{4}$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$
$\sqrt{4} = 2$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$
$\sqrt{4} = 2$
$(x)(2)$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$
$\sqrt{4} = 2$
$(x)(2) = 2x$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$
$\sqrt{4} = 2$
$(x)(2) = 2x$
$2(2x)$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{\quad}$$

$\sqrt{x^2} = x$
$\sqrt{4} = 2$
$(x)(2) = 2x$
$2(2x) = 4x$
Perfect Square Trinomial!

Example 2

$$\frac{2x}{x^2-4x+4}-\frac{1}{x-2}=\frac{2x}{(\quad)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x\qquad)^2}$$

Example 2

$$\frac{2x}{x^2 - 4x + 4} - \frac{1}{x - 2} = \frac{2x}{(x \quad 2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} -$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{\quad}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Find the LCM:

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Find the LCM:
$(x-2)^2 \quad =$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Find the LCM:

$(x-2)^2 \quad = \quad (x-2)^2$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Find the LCM:

$$\begin{array}{rcl} (x-2)^2 & = & (x-2)^2 \\ x-2 & = & x-2 \end{array}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Find the LCM:

$$\begin{array}{rcl} (x-2)^2 & = & (x-2)^2 \\ x-2 & = & x-2 \\ \hline \text{LCM} & = & \end{array}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Find the LCM:

$$\begin{array}{rcl} (x-2)^2 & = & (x-2)^2 \\ x-2 & = & x-2 \\ \hline \text{LCM} & = & (x-2)^2 \end{array}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} -$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{\qquad}{(x-2)^2} \qquad x-2$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.
4. Perform the indicated operations.

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = 2x$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = 2x -$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= 2x$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= 2x - x$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{(x-2)^2} = \quad x$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{(x-2)^2} = \frac{x+2}{\qquad}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{(x-2)^2} = \frac{x+2}{(x-2)^2}$$

How to Add or Subtract Dissimilar Rational Algebraic Expressions?

1. Simplify the expressions.
2. Find the least common denominator.
3. Express each rational expression to an equivalent expression whose denominator is the LCD.
4. Perform the indicated operations.
5. Express the answer in simplest form.

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{(x-2)^2} = \frac{x+2}{(x-2)^2}$$

Example 2

$$\frac{2x}{x^2-4x+4} - \frac{1}{x-2} = \frac{2x}{(x-2)^2} - \frac{1}{x-2}$$

$$= \frac{2x}{(x-2)^2} - \frac{x-2}{(x-2)^2} = \frac{2x-(x-2)}{(x-2)^2}$$

$$= \frac{2x-x+2}{(x-2)^2} = \frac{x+2}{(x-2)^2}$$ ✓

Thank you for watching.