

WARMUP

Find the LCD of each pair of fractions

1) $\frac{5}{9}, \frac{6}{11}$ $9 = 3 \cdot 3$ $11 = \frac{11}{3 \cdot 3 \cdot 11}$ $LCD = 3 \cdot 3 \cdot 11 = 99$

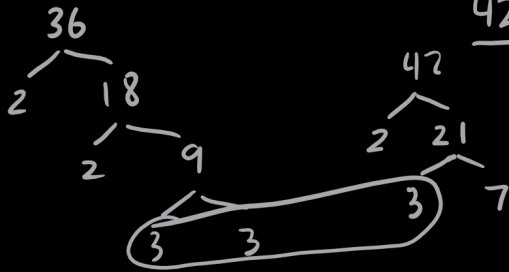
2) $\frac{3}{8}, \frac{5}{16}$ $8 = 2 \cdot 2 \cdot 2$
 $16 = 2 \cdot 2 \cdot 2 \cdot 2$
 $LCD = 2 \cdot 2 \cdot 2 \cdot 2 = 16$

3) $\frac{4}{9}, \frac{5}{12}$ $9 = 3 \cdot 3$

4) $\frac{11}{36}, \frac{5}{42}$ $12 = 3 \cdot 2 \cdot 2$
 $LCD = 3 \cdot 3 \cdot 2 \cdot 2 = 36$

$36 = 2 \cdot 2 \cdot 3 \cdot 3$
 $42 = 2 \cdot 3 \cdot 7$

$LCD = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7 = 252$



21) $\frac{x^2 - 2}{x^2 + x - 2} + \frac{2x - x^2}{x^2 + x - 2}$

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

$\frac{2x - 2}{x^2 + x - 2} \rightarrow$

~~$\frac{-2}{(x+2)(x-1)}$~~

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

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

$$24) \frac{x}{2x+7} - \frac{2}{2x+7} = \frac{x-2}{2x+7}$$

$$36) \frac{(2y^2 + 6y + 8)}{y^2 - 16} - \frac{(y^2 - 3y - 12)}{y^2 - 16}$$

$$\frac{2y^2 + 6y + 8 - y^2 + 3y + 12}{y^2 - 16}$$

$$\frac{y^2 + 9y + 20}{y^2 - 16}$$

$$\begin{array}{c} 20 \\ 5 \times 4 \\ 9 \end{array}$$

$$\frac{(y+5)(\cancel{y+4})}{(\cancel{y+4})(y-4)}$$

$$\frac{y+5}{y-4}$$

Section 7.4 Adding and Subtracting Rational Expressions with Different Denominators

ex: Find LCD of $\frac{7}{6x^2}$ and $\frac{2}{9x}$

$$\begin{array}{l} 6x^2 = | 2 \cdot 3 \cdot x \cdot x | \\ 9x = | 3 \cdot x \cdot 3 | \end{array}$$

$$2 \cdot 3 \cdot x \cdot x \cdot 3 = 18x^2 = \text{LCD}$$

ex: $\frac{3}{10x^2}$ and $\frac{7}{15x}$

$$\text{LCD} = 30x^2$$

$$10x^2 = 2 \cdot 5 \cdot x \cdot x$$

$$15x = \frac{5 \cdot x \cdot 3}{1}$$

$$\frac{2 \cdot 5 \cdot x \cdot x \cdot 3}{2 \cdot 5 \cdot x \cdot x \cdot 3} = 30x^2$$

ex: LCD of $\frac{3}{x+1}$ and $\frac{5}{x-1}$

$$x+1 = (x+1)$$

$$x-1 = \frac{\cdot (x-1)}{1}$$

$$\text{LCD} = (x+1) \cdot (x-1)$$

$$= x^2 - 1$$

ex: $\frac{1}{x+3}$ and $\frac{4}{x-3}$

$$\text{LCD} = x^2 - 9$$

ex: LCD of $\frac{7}{5x^2+15x}$ and $\frac{9}{x^2+6x+9}$

$$5x^2+15x = 5x(x+3)$$

$$x^2+6x+9 = \frac{(x+3) \cdot (x+3)}{1}$$

$$\begin{array}{c} 9 \\ 3 \times 3 \\ 6 \end{array}$$

$$\text{LCD} = 5x(x+3)(x+3)$$

ex: $\frac{9}{7x^2+28x}$ and $\frac{11}{x^2+8x+16}$

$$7x^2+28x = 7x(x+4)$$

$$x^2+8x+16 = (x+4)(x+4)$$

$$\text{LCD} = 7x(x+4)(x+4)$$

p494 1-5, 7, 9, 11, 13, 14, 16

7) $\frac{5}{7(y+2)}$ and $\frac{10}{y}$

Two expressions that no
common factors are
called relatively prime

$$\frac{7(y+2) \cdot y}{\text{LCD} = 7(y+2)y}$$

or

$$7y(y+2)$$