

(ID:97) 1. If $x = \frac{3}{4}$ and $y = \frac{1}{2}$, what is $\frac{x+y}{x-y}$?

(ID:98) 2. Add the following fractions: $\frac{1}{4} + \frac{11}{20}$

(ID:99) 3. Subtract and simplify: $\frac{1}{6} - \frac{13}{14}$

(ID:101) 4. Divide and simplify: $\frac{1}{15} \div \frac{2}{5}$

(ID:102) 5. Which Fraction is larger: $\frac{12}{17}$ or $\frac{3}{5}$?

(ID:187) 6. What is $\frac{1}{3} - \frac{1}{2}$?

(ID:188) 7. What is $\frac{13}{14} + \frac{11}{28}$?

(ID:351) 8. What is $\frac{59}{7}$ of the reciprocal of 0.2? Express your answer as a common fraction.

(ID:396) 9. What mixed number, added to $4\frac{1}{2}$, results in a sum of $11\frac{4}{5}$?

(ID:406) 10. What is the sum of the following? Express your answer as a common fraction.

$$1 - \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6}$$

Answer Key

1. 5

3. $-\frac{16}{21}$

5. $\frac{12}{17}$

7. $\frac{37}{28}$

9. $7\frac{3}{10}$

2. $\frac{4}{5}$

4. $\frac{1}{6}$

6. $-\frac{1}{6}$

8. $\frac{295}{7}$

10. $29\frac{1}{20}$

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Solution to Problem 1

Let

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

and

$$y = \frac{1}{2}$$

Find $\frac{x+y}{x-y}$.

Step 1: Compute $x+y$ and $x-y$

$$x + y = \frac{3}{4} + \frac{1}{2} = \frac{5}{4}$$

$$x - y = \frac{3}{4} - \frac{1}{2} = \frac{1}{4}$$

Step 2: Write as a division of fractions

$$\frac{x+y}{x-y} = \frac{\frac{5}{4}}{\frac{1}{4}}$$

Step 3: Divide by multiplying by the reciprocal

$$\begin{aligned} &= \frac{5}{4} \div \frac{1}{4} = \frac{5}{4} \times 4 \\ &= 5 \end{aligned}$$

Step 4: Final Answer

$$\boxed{5}$$

Solution to Problem 2

Add the fractions:

$$\frac{1}{4} + \frac{11}{20}$$

Step 1: Find a common denominator

$$\frac{5}{20} + \frac{11}{20}$$

Step 2: Add the numerators

$$= \frac{16}{20}$$

Step 3: Reduce to lowest terms

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

Step 4: Final Answer

$$\boxed{\frac{4}{5}}$$

Solution to Problem 3

Subtract the fractions:

$$\frac{1}{6} - \frac{13}{14}$$

Step 1: Find a common denominator

$$\frac{7}{42} - \frac{39}{42}$$

Step 2: Subtract the numerators

$$= \frac{-32}{42}$$

Step 3: Reduce to lowest terms

$$= -\frac{16}{21}$$

Step 4: Final Answer

$$\boxed{-\frac{16}{21}}$$

Solution to Problem 4

Divide the fractions:

$$\frac{1}{15} \div \frac{2}{5}$$

Step 1: Take the reciprocal of the second fraction and multiply

$$\frac{1}{15} \div \frac{2}{5} = \frac{1}{15} \times \frac{5}{2} = \frac{5}{30}$$

Step 2: Reduce to lowest terms

$$= \frac{1}{6}$$

Step 3: Final Answer

$$\boxed{\frac{1}{6}}$$

Solution to Problem 5

Compare the fractions:

$$\frac{12}{17} \quad \text{and} \quad \frac{3}{5}$$

Step 1: Reduce both fractions to lowest terms

$$\frac{12}{17} \quad \text{and} \quad \frac{3}{5}$$

Step 2: Find a common denominator

$$\frac{60}{85} \quad \text{and} \quad \frac{51}{85}$$

Step 3: Compare the numerators

Step 4: Final Answer

$$\frac{12}{17} \text{ is larger.}$$

$$\boxed{\frac{12}{17}}$$

Solution to Problem 6

Subtract the fractions:

$$\frac{1}{3} - \frac{1}{2}$$

Step 1: Find a common denominator

The least common denominator of 3 and 2 is 6.

Step 2: Rewrite fractions

$$\frac{1}{3} = \frac{2}{6}, \quad \frac{1}{2} = \frac{3}{6}$$

Step 3: Subtract fractions

$$\frac{2}{6} - \frac{3}{6} = -\frac{1}{6}$$

Step 4: Final Answer

$$\boxed{-\frac{1}{6}}$$

Solution to Problem 7

Add the fractions:

$$\frac{13}{14} + \frac{11}{28}$$

Step 1: Find a common denominator

The least common denominator of 14 and 28 is 28.

Step 2: Rewrite fractions

$$\frac{13}{14} = \frac{26}{28}, \quad \frac{11}{28}$$

Step 3: Add fractions

$$\frac{26}{28} + \frac{11}{28} = \frac{37}{28}$$

Step 4: Final Answer

$$\boxed{\frac{37}{28}}$$

Solution to Problem 8

To find $\frac{59}{7}$ of the reciprocal of 0.2:

Step 1: Express the decimal as a fraction

$$0.2 = \frac{1}{5}$$

Step 2: Find the reciprocal

$$\text{Reciprocal: } \frac{5}{1}$$

Step 3: Multiply by the fraction

$$\frac{59}{7} \cdot \frac{5}{1} = \frac{59 \cdot 5}{7 \cdot 1}$$

Step 4: Simplify

$$\frac{295}{7}$$

Step 5: Final Answer

The solution is

$\frac{295}{7}$

Solution to Problem 9

We need to find what mixed number, added to:

$$4\frac{1}{2}$$

gives:

$$11\frac{4}{5}.$$

Step 1: Convert mixed numbers to improper fractions

First mixed number:

$$4\frac{1}{2}$$

Target:

$$11\frac{4}{5}$$

Step 2: Subtract to find the missing number

The missing number is:

$$\frac{59}{5} - \frac{9}{2}$$

Step 3: Find common denominator and subtract

The LCD of 2 and 5 is 10:

$$\frac{59}{5} - \frac{9}{2} = \frac{73}{10}$$

Step 4: Convert to mixed number

As a mixed number:

$$7\frac{3}{10}$$

Step 5: Final Answer

Therefore, the missing mixed number is $7\frac{3}{10}$.

Solution to Problem 10

We need to find the sum of a fraction series with 6 terms.

Step 1: Find the least common denominator (LCD)

The denominators are: 1, 2, 3, 4, 5, 6.

The least common denominator is:

$$\text{LCD} = 60$$

Step 2: Convert each fraction to the LCD

Rewrite each fraction with the common denominator:

Term 1:

$$\frac{1}{1} = \frac{1 \times 60}{1 \times 60} = \frac{60}{60}$$

Term 2: -

$$\frac{1}{2} = \frac{1 \times 30}{2 \times 30} = \frac{30}{60}$$

Term 3: +

$$\frac{1}{3} = \frac{1 \times 20}{3 \times 20} = \frac{20}{60}$$

Term 4: +

$$\frac{1}{4} = \frac{1 \times 15}{4 \times 15} = \frac{15}{60}$$

Term 5: +

$$\frac{1}{5} = \frac{1 \times 12}{5 \times 12} = \frac{12}{60}$$

Term 6: +

$$\frac{1}{6} = \frac{1 \times 10}{6 \times 10} = \frac{10}{60}$$

Step 3: Combine the fractions

Now that all fractions have the same denominator, combine them:

$$\frac{60}{60} - \frac{30}{60} + \frac{20}{60} + \frac{15}{60} + \frac{12}{60} + \frac{10}{60}$$

Step 4: Add/subtract the numerators

Since all fractions have the same denominator, add/subtract the numerators:

$$\frac{60 - 30 + 20 + 15 + 12 + 10}{60} = \frac{87}{60}$$

Step 5: Final Answer

Therefore, the sum is $\frac{29}{20}$.

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