



Name _____ Date _____

Adding and Subtracting Unlike Fractions

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Combining Fractions with Different Denominators

To find the sum or difference of two fractions with unlike denominators,

- rename the fractions with a common denominator.
- add or subtract.
- simplify if necessary.

EXAMPLES

A Find $7 - \frac{2}{3}$.

$$\begin{aligned} 7 - \frac{2}{3} &= 6\frac{3}{3} - \frac{2}{3} && \text{Rename 7 as } 6\frac{3}{3}. \\ &= 6\frac{1}{3} && \text{Subtract.} \end{aligned}$$

B Find $2\frac{3}{4} - 3\frac{1}{2}$.

$$\begin{aligned} 2\frac{3}{4} - 3\frac{1}{2} &= 2\frac{3}{4} - 3\frac{2}{4} && \text{Rename using the LCD 4.} \\ &= 2\frac{3}{4} - 2\frac{6}{4} && \text{Rename } 3\frac{2}{4} \text{ as } 2\frac{6}{4}. \\ &= -\frac{3}{4} && \text{Subtract absolute values and} \\ &&& \text{choose the negative sign.} \end{aligned}$$

Try These Together

1. Solve $\frac{1}{5} + \frac{3}{4} = \ell$.

HINT: Rename both fractions with a denominator of 20.

2. Solve $-\frac{2}{9} + \frac{5}{6} = w$.

HINT: Rename using the LCD 18.

PRACTICE

Solve each equation. Write the solution in simplest form.

3. $k = -3\frac{3}{4} - \frac{5}{6}$ 4. $h = -\frac{3}{8} + \left(-\frac{3}{7}\right)$ 5. $5\frac{5}{7} - 4\frac{2}{3} = f$ 6. $8 - 5\frac{1}{5} = v$

7. $q = 3 - 8\frac{1}{4}$ 8. $m = -5\frac{1}{7} - \frac{1}{6}$ 9. $p = -8\frac{1}{2} - 4\frac{4}{9}$ 10. $1\frac{5}{8} + 1\frac{1}{6} = x$

11. Subtract $-4\frac{1}{6}$ from 2.

12. What is the sum of $-\frac{2}{5}$ and $-\frac{1}{7}$?

Evaluate each expression if $a = -\frac{1}{4}$, $b = 1\frac{2}{3}$, and $c = \frac{4}{9}$.

13. $b - c$

14. $a + b + c$

15. $a - (-c)$

16. **Cooking** A recipe uses $1\frac{1}{3}$ cups wheat flour and $\frac{1}{4}$ cup wheat germ. What is the sum of these amounts?



17. **Standardized Test Practice** Solve $t = -1\frac{1}{6} + \frac{2}{5}$.

A $-1\frac{17}{30}$

B $-\frac{23}{30}$

C $\frac{23}{30}$

D $1\frac{17}{30}$

Answers: 1. $\frac{19}{20}$ 2. $\frac{18}{11}$ 3. $-4\frac{12}{7}$ 4. $-\frac{56}{45}$ 5. $1\frac{1}{21}$ 6. $2\frac{5}{4}$ 7. $-5\frac{1}{4}$ 8. $-5\frac{13}{42}$ 9. $-12\frac{18}{17}$ 10. $2\frac{24}{19}$ 11. $6\frac{6}{1}$ 12. $-\frac{35}{19}$ 13. $1\frac{9}{2}$ 14. $1\frac{31}{36}$ 15. $\frac{36}{7}$ 16. $1\frac{12}{7}$ cups 17. B