

Name Key

Date _____

Mr. Tallman

Math 7-8A

Lesson #14 - Adding and Subtracting Fractions with Unlike Denominators

In order to add or subtract fractions, we need to have Common denominators.

Example 1) Add the following. Write your answer in simplest form.

A) $\frac{5 \times 2}{5 \times 3} + \frac{3}{15}$ $\frac{10}{15} + \frac{3}{15} = \frac{13}{15}$	B) $-\frac{3}{10} + \left(-\frac{2}{5}\right) \times 2$ $-\frac{3}{10} + \left(-\frac{4}{10}\right) = \frac{-7}{10}$
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**REMEMBER: When SUBTRACTING, we use the rule Keep, Change, Change.

Example 2) Subtract the following. Write your answer in simplest form

A) $\frac{3}{15} - \frac{2 \times 5}{3 \times 5}$ $\frac{3}{15} - \frac{10}{15}$ $\frac{3}{15} + \left(-\frac{10}{15}\right)$ $\frac{-7}{15}$	B) $\frac{x^2}{x^2} \frac{5}{9} - \left(-\frac{3}{18}\right)$ $\frac{5}{9} - \left(-\frac{3}{18}\right)$ $-\frac{10}{18} - \left(-\frac{3}{18}\right)$ $-\frac{10}{18} + \frac{3}{18} = \frac{-7}{18}$
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Try it! Subtract the following. Be sure to write your answer in simplest form.

$$\frac{x^8}{x^8} \frac{2}{3} - \left(-\frac{3}{8}\right) \times 3$$

$$-\frac{16}{24} - \left(-\frac{9}{24}\right)$$

$$-\frac{16}{24} + \frac{9}{24} = \frac{-7}{24}$$

Example 3) Evaluate the following. Write your answer in simplest form. $-6\frac{2}{9} + 4\frac{5}{6}$

$$\frac{-56}{9} + \frac{29}{9} = \frac{-27}{9} = \textcircled{-3}$$

Now, You Try! Add or subtract. Be sure to write your answer in simplest form.

<p>4) $\frac{x^4}{x^4} \frac{1}{3} - \left(-\frac{3}{4}\right) \frac{x^3}{x^3}$</p> $\frac{-4}{12} - \left(-\frac{9}{12}\right)$ $\frac{-4}{12} + \frac{9}{12} = \textcircled{\frac{5}{12}}$	<p>5) $-\frac{5}{6} + \left(-\frac{1}{2}\right) \frac{x^3}{x^3}$</p> $\frac{-5}{6} + \left(-\frac{3}{6}\right) = \frac{-8}{6}$ $6 \sqrt{\frac{-8}{6}} - \frac{12}{6} = \textcircled{-1\frac{1}{3}}$	<p>6) $\frac{y^4}{x^4} \frac{1}{2} + \frac{7}{8}$</p> $\frac{-4}{8} + \frac{7}{8} = \textcircled{\frac{3}{8}}$
<p>7) $-3\frac{1}{2} + 8\frac{1}{3}$</p> $\frac{-7}{2} + \frac{25}{3}$ $\frac{-21}{6} + \frac{50}{6} = \frac{29}{6}$ $6 \sqrt{\frac{29}{6}} = \textcircled{4\frac{5}{6}}$	<p>8) $-1\frac{2}{5} + \left(-3\frac{1}{3}\right)$</p> $\frac{-7}{5} + \left(-\frac{10}{3}\right)$ $\frac{-21}{15} + \left(-\frac{50}{15}\right) = \frac{-71}{15}$ $15 \sqrt{\frac{-71}{15}} = \textcircled{-4\frac{11}{15}}$	<p>9) $2\frac{3}{4} - 6\frac{1}{3}$</p> $\frac{11}{4} - \frac{19}{3}$ $\frac{33}{12} - \frac{76}{12}$ $\frac{33}{12} + \left(-\frac{76}{12}\right) = \frac{-43}{12} = \textcircled{-3\frac{7}{12}}$

10) Four telephone books are $2\frac{1}{8}$, $1\frac{15}{16}$, $1\frac{3}{4}$, and $2\frac{3}{8}$ inches thick. If these books were stacked one on top of another, what is the total height of the books?

- a) $5\frac{3}{16}$ inches
- b) $8\frac{3}{16}$ inches
- c) $11\frac{3}{16}$ inches
- d) $15\frac{3}{16}$ inches

$$\frac{17}{8} + \frac{31}{16} + \frac{7}{4} + \frac{19}{8}$$

$$\frac{34}{16} + \frac{31}{16} + \frac{28}{16} + \frac{38}{16} = \frac{131}{16}$$

$$16 \sqrt{\frac{131}{16}} = \textcircled{8\frac{3}{16}}$$