

A6 Notes #4 - Order of Operations with Fractions

Note Title

24/01/2014

★ Multiply ★ convert mixed into improper or make whole numbers fractions. Multiply numerators. Multiply denominators. Reduce. Convert if improper.

ex: $4 \times 3\frac{2}{5} \rightarrow \frac{4}{1} \times \frac{17}{5} \rightarrow \frac{68}{5} \rightarrow 13\frac{3}{5}$

★ Divide ★ Convert mixed into improper or make whole numbers fractions. Flip 2nd fraction. Multiply numerators. Multiply denominators. Reduce. Convert if improper.

ex: $2\frac{3}{5} \div 3 \rightarrow \frac{13}{5} \div \frac{3}{1} \rightarrow \frac{13}{5} \times \frac{1}{3} \rightarrow \frac{13}{15}$

★ Adding and Subtracting ★ Convert mixed into improper or make whole numbers fraction. Make equivalent fractions by multiplying numerator & denominator of 1 fraction by the same number. This is to make common (the same) denominators on both fractions. Add or subtract the numerators, but keep the denominator the same. Reduce. Convert if improper.

ex: $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$
 (Note: "add" written above the plus sign, "have common" written below the fractions)

ex: $\left(\frac{3}{4}\right) \times 2 + \frac{1}{8} = \frac{6}{8} + \frac{1}{8} = \frac{7}{8}$
 (Note: "make 8" written below the first fraction, "add" written above the plus sign)

ex: $2\frac{1}{2} - \frac{5}{6} = \left(\frac{5}{2}\right) \times 3 - \frac{5}{6} = \frac{15}{6} - \frac{5}{6} = \frac{10}{6} \div 2 = \frac{5}{3} = 1\frac{2}{3}$
 (Note: "make 6" written below the first fraction, "add" written above the plus sign)

Order of Operations

BEDMAS
 ① either ② either ③

1. $7 \times \frac{1}{2} - 2 \div \frac{3}{5}$

$\frac{7}{1} \times \frac{1}{2} - 2 \div \frac{3}{5}$
 $\frac{7}{2} - 2 \div \frac{3}{5}$
 $\frac{7}{2} - \frac{2}{1} \times \frac{5}{3}$

2. $\frac{3}{2} \div \left(\frac{1}{2} + \frac{1}{4}\right) \div \frac{3}{4}$

$\frac{3}{2} \div \left(\frac{2}{4} + \frac{1}{4}\right) \div \frac{3}{4}$
 $\frac{3}{2} \div \frac{3}{4} \div \frac{3}{4}$
 $\frac{3}{2} \times \frac{4}{3} \div \frac{3}{4}$

$$3 \times \left(\frac{7}{2} \right) - \left(\frac{10}{3} \right) \times 2$$

make 6

$$\frac{21}{6} \rightarrow \frac{20}{6} \quad \left(\frac{1}{6} \right)$$

$$\frac{12}{6} \div \frac{4}{3}$$

$$\frac{12}{6} \times \frac{3}{4}$$

$$\frac{40}{10} = 2 \frac{12}{18}$$

$$= 2 \frac{2}{3}$$

3. $2\frac{1}{4} - \frac{1}{2} \times \left(\frac{3}{4} - \frac{1}{8} \right)$

$$2\frac{1}{4} - \frac{1}{2} \times \left(\frac{3}{4} - \frac{1}{8} \right)$$

$$2\frac{1}{4} - \frac{5}{16}$$

$$4 \times \left(\frac{9}{4} \right) - \frac{5}{16}$$

$$\frac{36}{16} - \frac{5}{16} = \frac{31}{16} = \left(\frac{19}{16} \right)$$