Check Your Answers on Fraction Operations!

1. $\frac{7}{8}$ $\left(\frac{5}{8} + \frac{1}{4} = \frac{5}{8} + \frac{1}{4}\cdot\frac{2}{2} = \frac{5}{8} + \frac{2}{8} = \frac{7}{8}\right)$ Addition requires "like terms" or common denominators. Produce a common denominator by multiplying by a form of 1 (which does not change the value).

2. $\frac{1}{2}$ $\left(\frac{2}{3} - \frac{1}{6} = \frac{2}{3}\cdot\frac{2}{2} - \frac{1}{6} = \frac{4}{6} - \frac{1}{6} = \frac{3}{6} \div \frac{3}{3} = \frac{1}{2}\right)$ Subtraction also requires "like terms" or common denominators. Don't forget to simplify!

3. $\frac{4}{11}$ $\left(\frac{2}{5} \cdot \frac{10}{11} = \frac{20}{55} \div \frac{5}{5} = \frac{4}{11}\right)$ OR $\left(\frac{2}{5} \cdot \frac{10}{11} = \frac{2}{\cancel{5}_1} \cdot \frac{\cancel{10}^2}{11} = \frac{4}{11}\right)$ Multiplication does NOT require "like terms" or common denominators. Also it is often easier to simplify before multiplying!

4. $\frac{27}{32}$ $\left(\frac{3}{8} \div \frac{4}{9} = \frac{3}{8} \cdot \frac{9}{4} = \frac{27}{32}\right)$ Division is often redefined as "multiplying by the reciprocal." The reciprocal flips the fraction (interchange numerator and denominator). To divide fractions, change the operation to multiplication and "flip" the divisor (the second term).

5. $\frac{5}{6}$ $\left(\frac{1}{2} + \frac{3}{4} - \frac{5}{12} = \frac{1}{2}\cdot\frac{6}{6} + \frac{3}{4}\cdot\frac{3}{3} - \frac{5}{12} = \frac{6}{12} + \frac{9}{12} - \frac{5}{12} = \frac{6+9-5}{12} = \frac{10}{12} \div \frac{2}{2} = \frac{5}{6}\right)$ It is simpler to produce a denominator common to all terms at the beginning.

6. $\frac{25}{24}$ $\left(\frac{5}{6} \cdot \frac{1}{2} \div \frac{2}{5} = \frac{5}{6} \cdot \frac{1}{2} \cdot \frac{5}{2} = \frac{5 \cdot 1 \cdot 5}{6 \cdot 2 \cdot 2} = \frac{25}{24}\right)$ Yes, you could complete the multiplication first and then divide.

7. $\frac{5}{4}$ $\left(2\frac{1}{3} + \frac{3}{4} - 1\frac{5}{6} = \frac{7}{3} + \frac{3}{4} - \frac{11}{6} = \frac{7}{3}\cdot\frac{4}{4} + \frac{3}{4}\cdot\frac{3}{3} - \frac{11}{6}\cdot\frac{2}{2} = \frac{28}{12} + \frac{9}{12} - \frac{22}{12} = \frac{28+9-22}{12} = \frac{15}{12} \div \frac{3}{3} = \frac{5}{4}\right)$

8. $\frac{15}{2}$ $\left(3\frac{1}{8} \cdot 2\frac{2}{3} \div 1\frac{1}{9} = \frac{25}{8} \cdot \frac{8}{3} \div \frac{10}{9} = \frac{25}{8} \cdot \frac{8}{3} \cdot \frac{9}{10} = \frac{\cancel{25}^5}{\cancel{8}_1}\cdot\frac{\cancel{8}^1}{\cancel{3}_1}\cdot\frac{\cancel{9}^3}{\cancel{10}_2} = \frac{15}{2}\right)$ Easier to simplify before multiplying!

9. $\frac{1}{12}$ $\left(\frac{2}{9} \cdot \frac{3}{10} \div \frac{2}{5} + \frac{7}{12} - \frac{2}{3} = \frac{\cancel{2}^1}{\cancel{9}_3}\cdot\frac{\cancel{3}^1}{\cancel{10}_2}\cdot\frac{\cancel{5}^1}{\cancel{2}_1} + \frac{7}{12} - \frac{2}{3} = \frac{1}{6}\cdot\frac{2}{2} + \frac{7}{12} - \frac{2}{3}\cdot\frac{4}{4} = \frac{2}{12} + \frac{7}{12} - \frac{8}{12} = \frac{2+7-8}{12} = \frac{1}{12}\right)$

10. $\frac{17}{6}$ $\left(\frac{1}{3} \div \frac{3}{4} \cdot 1\frac{1}{2} - \frac{1}{6} + 2\frac{1}{3} = \frac{1}{3} \cdot \frac{4}{3} \cdot \frac{3}{2} - \frac{1}{6} + \frac{7}{3} = \frac{1}{\cancel{3}_1}\cdot\frac{\cancel{4}^2}{3}\cdot\frac{\cancel{3}^1}{\cancel{2}_1} - \frac{1}{6} + \frac{7}{3} = \frac{2}{3}\cdot\frac{2}{2} - \frac{1}{6} + \frac{7}{3}\cdot\frac{2}{2} = \frac{4-1+14}{6} = \frac{17}{6}\right)$

Perfect score? Yes! You've got this!! You're ready to move on to the next section!!!