Complex Fractions

Objective: To simplify complex fractions
Complex Fraction: a fraction with a numerator, denominator, or both that are also fractions
Hints:

- Complex fractions are simplified when both the numerator and denominator are integers.

- Remember that a fraction is also a division problem (numerator divided by denominator).
Examples:

- Write the complex fraction as a division problem:
  \[
  \frac{2}{3} = \frac{2}{3}
  \]

- Multiply by the reciprocal:
  \[
  2 \div \frac{2}{3} = \frac{2}{1} \times \frac{3}{2} = \frac{6}{2}
  \]

- Simplify:
  \[
  \frac{6 \div 2}{2 \div 2} = \frac{3}{1} = 3
  \]
Examples:

- Write as a division problem:
  \[
  \frac{2}{3} \div 7 = \frac{2}{3} \times \frac{1}{7} = \frac{2}{21} 
  \]

- Multiply by the reciprocal:
Examples:

- Write as a division problem:
  \[
  \frac{6}{1} \div \frac{1}{3} =
  \]

- Multiply by the reciprocal:
  \[
  \frac{6}{1} \times \frac{3}{1} = \frac{18}{1} = 18
  \]
Examples:

- Write a complex fraction as a division problem:
  \[
  \frac{4 \frac{1}{2}}{1 \frac{1}{2}} = \frac{4 + \frac{1}{2}}{\frac{1}{2}} \times \frac{\frac{1}{2}}{1 + \frac{1}{2}}
  \]

- Rename mixed numbers as improper fractions:
  \[
  \frac{9}{2} \div \frac{3}{2}
  \]

- Multiply by the reciprocal:
  \[
  \frac{9}{2} \times \frac{1\frac{2}{3}}{1\frac{1}{2}} = \frac{3}{1} = 3
  \]

- Label your answer:
  3 miles per hour

Aubrey can walk 4 \frac{1}{2} miles in 1 \frac{1}{2} hours. Find her average speed in miles per hour.
On Javier’s soccer team, about $33\frac{1}{3}\%$ of the players have scored a goal. Write $33\frac{1}{3}\%$ as a fraction simplest form.

Write the percent as a complex fraction over 100:

$\frac{33\frac{1}{3}}{100} = \frac{100}{3} \div \frac{100}{1} = \frac{100}{3} \times \frac{1}{100} = \frac{1}{3}$
Homework:

Homework: Pg. 21-22 #1-18 all
Pg. 24 #32-40 evens