E: Problem Solving with Fractions Continued.

→ Convert the fractions to decimals, unless they are repeating.

- Do <u>not</u> round until the end of the question and <u>only</u> if you are asked to round.

Examples.

- You lend $85 to a friend. He pays back $\frac{1}{5}$ of the debt the first week then $\frac{1}{4}$ of the remaining debt the next week. How much money is still owed?

→ Solution is on the second document.

2. A sub sandwhich is 20cm long. You eat $\frac{1}{2}$ of the sandwhich and give $\frac{1}{3}$ of the original to a friend. How much is left over?

3. The diameter of a volleyball is $\frac{5}{6}$ the diameter of a basketball. A basketball's diameter is $\frac{7}{10}$ the diameter of a beach ball.

a) What fraction of the diameter of the beachball is the diameter of the volleyball?

b) If the diameter of the beachball is 50cm. What is the diameter of the volleyball?

Assignment. Pg. 68 #9-23, 26, 27.

E: Problem Solving with Fractions Continued — Key

Examples:

① Week One

$\frac{1}{5}$ of $85

Convert $\frac{1}{5}$ to a decimal.

$1 \div 5$

0.2×85

"of" means $\times$

$= 17

This is the amount paid back.

$
\begin{array}{r}
\$85 \\
- 17 \\
\hline
\$68
\end{array}
$

Subtract to find remaining debt.

Week Two

$\frac{1}{4}$ of $68

Convert $\frac{1}{4}$ to a decimal

$1 \div 4$

0.25×68

"of" means $\times$

$= 17

$
\begin{array}{r}
\$68 \\
- 17 \\
\hline
\$51
\end{array}
$

Subtract to find what is still owed.

Write a sentence as part of your answer.

I am still owed $51.

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2. $\frac{1}{2} + \frac{1}{3}$

Add the amounts eaten together. Keep as fractions b/c $\frac{1}{3}$ is $0.\overline{3}$.

$\frac{1^{\times 3}}{2_{\times 3}} + \frac{1^{\times 2}}{3_{\times 2}}$

$\frac{3}{6} + \frac{2}{6}$

→ Find common denominator

$= \frac{5}{6}$

Add the tops.

$\frac{5}{6}$ of 20cm

"of" means multiply

$\frac{5}{6} \times \frac{20}{1}$

Don't convert $\frac{5}{6}$ b/c its repeating

$\dfrac{5}{\underset{3}{6-2}} \times \dfrac{\overset{10}{\cancel{20} \div 2}}{1}$

Cross Reduce.

Top $\times$ Top $:$ Bot $\times$ Bot

$= \frac{50}{3}$

$= 16.\overline{6}$

Divide to calculate how much was eaten.

$
\begin{array}{r}
20 \\
- 16.\overline{6} \\
\hline
3.\overline{3}\,cm
\end{array}
$

Subtract to find how much is left.

There is $3.\overline{3}$cm left over.

3. a) Call your unknown x. Write an "x" statement.

x = diameter of the beach ball.

basketball's diameter (is) $\frac{7}{10}$ the diameter (of) the beach ball.

$= \frac{7}{10}$ x "x"

basketball $= \left(\frac{7}{10}\right)\left(\frac{x}{1}\right)$

Top × Top $(7)(x) = 7x$
Bot × Bot $(10)(1) = 10$

basketball $= \frac{7x}{10}$

volleyball (is) $\frac{5}{6}$ the diameter (of) the basketball,

$= \frac{5}{6}$ x solved above

$\frac{7x}{10}$

volley $= \left(\frac{5}{6}\right)\left(\frac{7x}{10}\right)$

Top × Top $(5)(7x) = 35x$
Bot × Bot $(6)(10) = 60$

$= \frac{35x}{60}$ ⟶ What is the fraction?

$\frac{35}{60}$ [Reduce this.]

$= \frac{35 \div 5 \, x}{60 \div 5}$

$= \frac{7x}{12}$ The volleyball is $\frac{7}{12}$ the beach ball.

b) Substitute 50 into x in the above solution.

$= \frac{7x}{12}$ $x = 50$ $= \frac{350 \div 2}{12 \div 2}$

$= \frac{7(50)}{12}$ BEDMAS $= \frac{175}{6}$ Divide to solve.

$= \frac{350}{12}$ Reduce $= 29.16$ cm   The diameter of a volleyball is