TH-PA Pre-Algebra Week 23 3/7

1.) $0.\boxed{5}555\ldots = \boxed{\frac{5}{9}}$

2.) $0.787878\ldots$ $\frac{78 \div 3}{99 \div 3}$ $\boxed{\frac{26}{33}}$

digits repeated

one 9 for each digit

3.) $0.\boxed{\overline{3}} = \frac{3 \div 3}{9 \div 3} = \boxed{\frac{1}{3}}$ repeating

4.) $0.423423423\ldots$ $\frac{423 \div 9}{999 \div 9} = \boxed{\frac{47}{111}}$

$0.823333\ldots$

(1000) (1000)

$n = 0.823.333\ldots$

1 2 3

3

$1000n = 823.333\ldots$

$0.823333\ldots$

$100n = 82.3333$

$1000n = 823.\cancel{333}\ldots$

$-\quad 100n = 82.\cancel{3333}$

$\frac{900n}{900} = \frac{741}{900}$ $n = \frac{741 \div 3}{900 \div 3} = \boxed{\frac{247}{300}}$

1.) Find the first digit in the repeat

2.) Place decimal after the first repeated digit.

3.) Place decimal before the first repeated digit.

4.) Subtract and solve.

$0.8\overline{3} = 0.83333\ldots$

$n = 0.83333\ldots$ $\quad$ $n = 0.83333\ldots$

100 $\quad$ no

$100n = 83.\cancel{3333}\ldots$

$-\ 10n = 8.\cancel{33333}\ldots$

$\frac{90n}{90} = \frac{75}{90}$ $\quad$ $n = \frac{75 \div 5}{90 \div 5} = \frac{15 \div 3}{18 \div 3} = \boxed{\frac{5}{6}}$

$4\frac{3}{7} + 2\frac{11}{14}$ $\quad$ $\frac{3}{7} + \frac{11}{14}$ $\quad$ $\frac{3}{7} = \frac{6}{14}$ $\quad$ $\frac{11}{14} = \frac{11}{14}$

*2 $\quad$ *2

$4\frac{6}{14} + 2\frac{11}{14}$

6 $\quad$ $\frac{6}{14} + \frac{11}{14} = \frac{17}{14}$

$\Rightarrow \frac{17}{14}$

$$\begin{array}{r} 1 \\ 14\overline{)17} \\ -14 \\ \hline 3 \end{array}$$

$6 + 1\frac{3}{14} = \boxed{7\frac{3}{14}}$

$3\frac{5}{8} - 1\frac{5}{6}$

$\frac{5}{8} - \frac{5}{6}$

$\frac{5}{8} \overset{*3}{=} \frac{15}{24}$ (*3) $\qquad \frac{5}{6} \overset{*4}{=} \frac{20}{24}$ (*4)

$2\frac{15}{24} + \frac{24}{24}$

$-\ 1\ \frac{20}{24}$

$2\ \frac{39}{24}$

$-\ 1\ \frac{20}{24}$

$1\ 19/24$

$\frac{7}{9} * \frac{3}{7} = \frac{21}{63} \overset{\div 21}{\div 21} = \frac{1}{3}$

No need to find a common denominator

$\frac{7}{9} * \frac{3}{7}$ ($\div 7$, $\div 7$)

$\frac{1}{9} * \frac{3}{1} = \frac{1}{3} * \frac{1}{1} = \frac{1}{3}$ ($\div 3$, $\div 3$)

$\frac{9}{20} * \frac{4}{15}$ ($\div 3$, $\div 3$)

$\frac{3}{20} * \frac{4}{5} = \frac{3}{5} * \frac{1}{5} = \frac{3}{25}$ ($\div 4$, $\div 4$)

$5\frac{1}{7} * 4\frac{2}{3}$

Must convert mixed numbers to improper fractions.

$$5\frac{1}{7} = \frac{(\text{whole number} * \text{denominator}) + \text{numerator}}{\text{denominator}}$$

$$1 \quad 1 \quad 1 \quad 1 \quad 1 \quad \frac{1}{7}$$

$$\frac{7}{7} + \frac{7}{7} + \frac{7}{7} + \frac{7}{7} + \frac{7}{7} + \frac{1}{7} = \frac{36}{7}$$

$$5\frac{1}{7} = \frac{(5 * 7) + 1}{7}$$

$$\frac{35+1}{7} = \boxed{\frac{36}{7}}$$

$$4\frac{2}{3} = \frac{(4 * 3) + 2}{3} = \frac{12+2}{3} = \frac{14}{3}$$

$$5\frac{1}{7} * 4\frac{2}{3}$$

$$\frac{36}{7} * \frac{14}{3} = \frac{12}{7} * \frac{14}{1} = \frac{12}{1} * \frac{2}{1}$$

$\div 3$ $\div 3$ $\div 7$ $\div 7$

$$\frac{24}{1} = \boxed{24}$$

Divide Fractions

Keep, change, flip!

$\frac{3}{8} \div \left(\frac{9}{16}\right)$

Keep change flip

$\frac{3}{8} * \frac{16}{9} = \frac{1}{8} * \frac{16}{3} = \frac{1}{1} * \frac{2}{3} = \boxed{\frac{2}{3}}$

$\frac{2}{3} \div \frac{4}{9}$

$\frac{2}{3} * \frac{9}{4} = \frac{2}{1} * \frac{3}{4} = \frac{1}{1} * \frac{3}{2} = \boxed{\frac{3}{2}}$

$6\frac{1}{8} \div \frac{7}{3}$

$6\frac{1}{8} = \frac{(6*8)+1}{8} = \frac{48+1}{8} = \frac{49}{8}$

$\frac{49}{8} \div \frac{7}{3}$

Keep, Change, Flip!

$\frac{7}{8} * \frac{3}{1} = \boxed{\frac{21}{8}}$