

Instructions: Show all work. Answers should be given as fractions in reduced form, as improper fractions rather than as mixed numerals. No decimals unless specifically asked for them.

1. Perform the following operations by hand.

a. $\frac{5}{12} + \frac{11}{14} =$ $\frac{7}{7} \cdot \frac{5}{12} + \frac{6}{6} \cdot \frac{11}{14} = \frac{35}{84} + \frac{66}{84} = \boxed{\frac{101}{84}}$

LCD = ~~2~~ $6 \cdot 7 = 84$

$\frac{84}{14} = 6$ $\frac{84}{12} = 7$

b. $5\frac{1}{3} - 1\frac{5}{6} =$ $\frac{16}{3} - \frac{11}{6} = \frac{2 \cdot 16}{2 \cdot 3} - \frac{11}{6} = \frac{32}{6} - \frac{11}{6} = \frac{21}{6} = \boxed{\frac{7}{2}}$

$5 \cdot 3 + 1 = 16$

$\frac{16}{3}$

$6 \cdot 1 + 5 = 11$

$\frac{11}{6}$

$(\div \frac{3}{3})$

c. $\frac{9}{7} \cdot \frac{14}{27} \div \frac{10}{33} =$ $\left(\frac{\cancel{3} \cdot \cancel{2} \cdot \cancel{2} \cdot \cancel{7}}{\cancel{3} \cdot \cancel{3} \cdot \cancel{3}} \right) \div \left(\frac{10}{33} \right) = \frac{2}{3} \div \frac{10}{33} = \frac{2}{3} \cdot \frac{33}{10} =$

$\frac{\cancel{2}}{\cancel{3}} \cdot \frac{\cancel{3} \cdot 11}{\cancel{2} \cdot 5} = \boxed{\frac{11}{5}}$

2. Write the expression $0.\overline{384615}$ as a fraction in reduced form. You may use your calculator, but be very careful. If you show no work, I cannot give partial credit.

option 1: 6 digits are repeated so use 6 9's in denominator

$$\frac{384615}{999999} \text{ reduce} = \frac{42735}{111111} = \frac{6105}{15873} = \frac{2035}{5291} = \frac{185}{481}$$

$(\div 9)$ $(\div 7)$ $(\div 3)$ $(\div 11)$

$\frac{15}{13}$ or type $384615/999999$ into calc hit \blacktriangleright Frac.

$(\div \frac{37}{37})$

option 2: work at least 12 of repeating digits or more in calc.

$\cdot 384615384615384615 \blacktriangleright$ Frac $= \frac{5}{13}$ in reduced form.