A6 Multiplying Fractions

Note Title 23/04/2015

⊛ To multiply fractions, you need to convert them improper fractions, then multiply the numerators (tops) then multiply the denominators (bottoms), then reduce and convert to proper if needed ⊛

1.) Convert from Proper to Improper:

(has a numerator LARGER than denominator)

a. $3\frac{1}{2} \rightarrow \frac{7}{2}$ — $6+1$: second you add, $6+1$; first you multiply 2×3

b. $4\frac{4}{5} \rightarrow \frac{24}{5}$ — $20+$

c. $1\frac{1}{8} \rightarrow \frac{9}{8}$ — $8+$

2.) Convert from Improper to Proper:

(Mixed Fraction)

a. $\frac{17}{5} \rightarrow 3\frac{2}{5}$ — -15: second, subtract how many from numerator; first, how many denominators go into numerator, 5, 10, 15

b. $\frac{31}{8} \rightarrow 3\frac{7}{8}$ — -24; 8, 16, (24), 32 → 3

c. $\frac{29}{3} \rightarrow 9\frac{2}{3}$ — -27; $3\times9=27$

3.) Reduce, then convert, if needed.

hint: if both #'s are even, ÷2
if both #'s end in a 5 or 0, ÷5

a. $\frac{64}{40}\,{\div2 \atop \div2} \rightarrow \frac{32}{20}\,{\div2 \atop \div2} \rightarrow \frac{16}{10}\,{\div2 \atop \div2} \rightarrow \frac{8}{5}\,{-5} \rightarrow \boxed{1\frac{3}{5}}$

b. $\frac{75 \div 5}{50 \div 5} \rightarrow \frac{15 \div 5}{10 \div 5} \rightarrow \frac{3}{2}^{-2} \rightarrow \boxed{1\frac{1}{2}}$

4.) Multiply the following. Answers must be reduced and proper.

a. $\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \boxed{\frac{8}{15}}$

b. $2\frac{1}{3} \times 3\frac{1}{4} = \frac{7}{3} \times \frac{13}{4} = \frac{7 \times 13}{3 \times 4} = \frac{91}{12}^{-84} \rightarrow \boxed{7\frac{7}{12}}$

(6 +, 12 +, ×)

calc. $91 \div 12 = 7.582....$

$7 \times 12 = 84$

c. $1\frac{7}{8} \times 2\frac{3}{4} = \frac{15}{8} \times \frac{11}{4} = \frac{15 \times 11}{8 \times 4} = \frac{165}{32}^{-160} \rightarrow \boxed{5\frac{5}{32}}$

(8 +, 8 +, ×)

OTHER METHOD $165 \div 32 = 5.156...$

$5 \times 32 = 160$

d. $\frac{3}{9} \times 1\frac{1}{3} = \frac{3}{9} \times \frac{4}{3} = \frac{\cancel{3}^{1} \times 4}{9 \times \cancel{3}_{1}} = \boxed{\frac{4}{9}}$

(3 +, ×)

$\frac{12 \div 3}{27 \div 3} = \boxed{\frac{4}{9}}$

same # as num & deno. cancel to one

e. $\frac{4}{5} \times \frac{3}{1} = \frac{4 \times 3}{5 \times 1} = \frac{12}{5}^{-10} \rightarrow \boxed{2\frac{2}{5}}$

☆ must make whole #'s into fractions. make denominator a 1.