Mathematics9 Date _____

Unit 2: Working With Rational Numbers

2.3 Problem Solving with Rationals as Fractions

Ex. Solve:

a) $\frac{-3}{4} - \frac{1}{5}$

* LCD to + OR −

$= \frac{-15}{20} + \frac{-4}{20}$

$= \boxed{\frac{-19}{20}}$

b) $\boxed{-2\frac{1}{2}} + 1\frac{9}{10}$

$-2 + 1$

-1

$-\frac{1}{1} + \frac{2}{5}$

$= \frac{-5}{5} + \frac{2}{5}$

$= \boxed{\frac{-3}{5}}$

OR

$-\frac{1}{2} + \frac{9}{10}$

$-\frac{5}{10} + \frac{9}{10}$

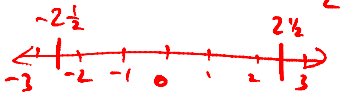
$-\frac{5}{2} + \frac{19}{10}$

$-\frac{25}{10} + \frac{19}{10}$

$= \frac{-6}{10}$

$= \boxed{\frac{-3}{5}}$

* $-2\frac{1}{2}$ opposite of $2\frac{1}{2}$



$-2\frac{1}{2} = -2 + \frac{-1}{2}$ $2\frac{1}{2} = 2 + \frac{1}{2}$

c) $-\frac{\cancel{2}^{1}}{5}\left(-\frac{1}{\cancel{6}_{3}}\right)$

* pre-cancel ✗

$= \boxed{\frac{1}{15}}$

d) $-2\frac{1}{8} \div 1\frac{1}{4}$

$= -\frac{17}{8} \div \frac{5}{4}$

$= -\frac{17}{\cancel{8}_{2}} \times \frac{4}{5}^{1}$

$= \boxed{-\frac{17}{10} \text{ or } -1\frac{7}{10}}$

* ✗ or ÷ must be improper

* change ÷ into ✗ the reciprocal

Ex. At the start of the week Jane had $30. During the week she spent $\frac{1}{5}$ of the money on bus fares, another $\frac{1}{2}$ shopping, and $\frac{1}{4}$ of what was left over on snacks. How much money was left at the end of the week?

of = ✗

Bus $\frac{\cancel{30}^{6}}{1} \times \frac{1}{\cancel{5}_{1}} = \$6$

shopping $\frac{\cancel{30}^{15}}{1} \times \frac{1}{\cancel{2}_{1}} = \$15$ spent $\$21$

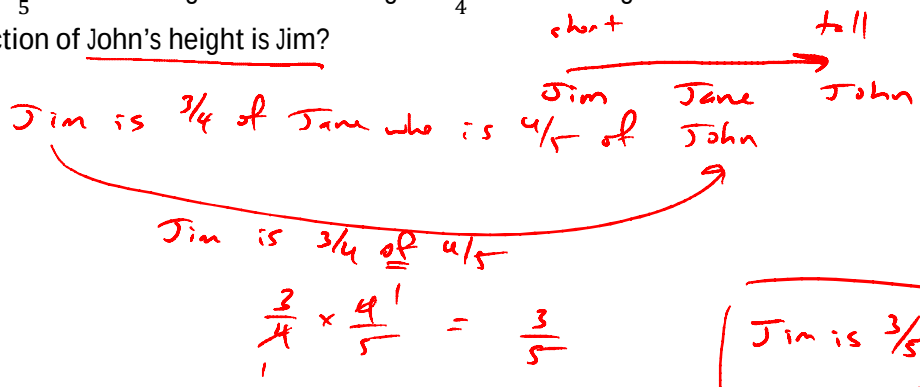
$30 - 21 = \$9$ left over

snacks $\frac{9}{1} \times \frac{1}{4} = \frac{9}{4} = 2\frac{1}{4} = \$2.25$ spent

$9 - 2.25 = \boxed{\$6.75}$

Ex. Jane's height is $\frac{4}{5}$ of John's height and Jim's height is $\frac{3}{4}$ of Jane's height.

a) What fraction of John's height is Jim?



b) If John is 150 cm tall, how tall are Jane and Jim?

Jane: $\frac{4}{5} \times \frac{30}{1} = 120$ cm

Jim: $\frac{3}{5} \times \frac{30}{1} = 90$ cm OR $\frac{3}{4} \times \frac{30}{1} = 90$ cm

Practice: pg. 68/ #5, 7, 9, 13, 14, 16, 18, 21, 26 *no estimates