Name: _____ Date: _____

Learning Goal 2.2	I can multiply and divide fractions.

Example Use **common denominators** to model the following quotients.

$\frac{2\times 3}{2\times 4} \div \frac{1}{8}$ LCM(4,8) = 8

$= \frac{6}{8} \div \frac{1}{8}$

how much pie you have left

the size of the piece

$= 6$

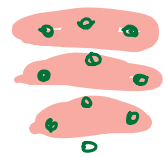
$= \left(\frac{42}{8}\right)$

How many people can I feed?

$2\frac{1}{2} \div \frac{3}{4} = \frac{2\times 5}{2\times 2} \div \frac{3}{4}$

LCM(2,4) = 4

$= \frac{10}{4} \div \frac{3}{4}$



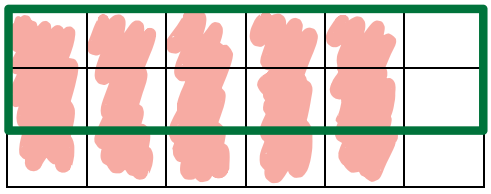
$= 3\frac{1}{3} = \left(\frac{20}{6}\right)$

Example Use **arrays** to model the following quotients.

$\frac{5}{6} \div \frac{2}{3} = \frac{15}{12}$

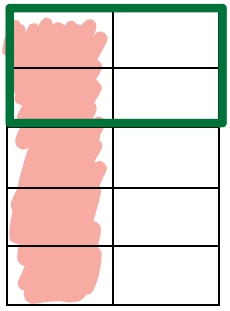
coloured in

new whole.



$= \frac{5}{4}$

$\frac{1}{2} \div \frac{2}{5} = \frac{5}{4}$



$\frac{2}{3} \div \frac{6}{1} = \frac{2}{3} \times \frac{1}{6}$

Dividing Fractions and Mixed Numbers Without using a Model

$$\frac{\text{left numerator} \times \text{right denominator}}{\text{right numerator} \times \text{left denominator}}$$

or

Multiply by the the reciprocal of the second fraction

Assignment p. 227 #7 – 15, 19, 20 Quiz Next Day!

Example Evaluate the following quotients. Write your answers i4n lowest terms.

a. $\frac{1}{9} \div \frac{2}{7} = \frac{1}{9} \times \frac{7}{2} = \frac{7}{18}$

b. $\frac{4}{5} \div \frac{3}{10} = \frac{4}{\cancel{5}_1} \times \frac{\cancel{10}^2}{3} = \frac{4}{1} \times \frac{2}{3} = \frac{8}{3}$

$= \frac{40}{15} \div \frac{5}{5} = \frac{8}{3}$

c. $\frac{10}{9} \div \frac{5}{6} = \frac{\cancel{10}^2}{9} \times \frac{6}{\cancel{5}_1} = \frac{2}{3} \times \frac{\cancel{6}^2}{1} = \frac{4}{3}$

d. $2\frac{2}{5} \div \frac{8}{15}$

$= \frac{12}{5} \div \frac{8}{15}$

$= \frac{\cancel{12}^3}{\cancel{5}_1} \times \frac{\cancel{15}^3}{\cancel{8}_2}$

$= \frac{9}{2}$

e. $3\frac{1}{6} \div 1\frac{2}{3}$

$= \frac{19}{6} \div \frac{5}{3}$

$= \frac{19}{\cancel{6}_2} \times \frac{\cancel{5}^1}{5}$

$= \frac{19}{10}$

f. $2\frac{13}{16} \div 2\frac{7}{24}$

$= \frac{45}{16} \div \frac{55}{24}$

$= \frac{45}{\cancel{16}_8} \times \frac{\cancel{24}^{12}}{55} = \frac{1080}{880}$

$= \frac{45}{\cancel{8}_2} \times \frac{\cancel{12}^3}{55}$

$= \frac{\cancel{45}^9}{2} \times \frac{3}{\cancel{55}_{11}} = \frac{27}{22}$

Example Vince usually takes $5\,^1/_2$ hours to drive from Kamloops to Banff. Because of snowfall, the drive took Vince $8\,^1/_4$ hours one day. How many times as long as usual was the drive that day?

~~$5\frac{1}{2} \div 8\frac{1}{4}$~~

$8\frac{1}{4} \div 5\frac{1}{2}$

$= \frac{33}{4} \div \frac{11}{2}$

$= \frac{\cancel{33}^3}{\cancel{4}_2} \times \frac{\cancel{2}^1}{\cancel{11}_1} = \frac{3}{2} = 1\frac{1}{2}$

The trip took one and a half times longer than usual.

Example Sabrina has $3\,^1/_3$ L of ice cream to share equally amongst herself and her nine friends at her birthday party. How much ice cream will each person get?

~~$10 \div 3\frac{1}{3}$~~

$3\frac{1}{3} \div 10$

$= \frac{10}{3} \div \frac{10}{1}$

$= \frac{\cancel{10}^1}{3} \times \frac{1}{\cancel{10}_1}$

$= \frac{1}{3}$

Each person gets $\frac{1}{3}$ of a litre of ice cream.