Math 8 Chp 3 Part 1 Ref Sheet

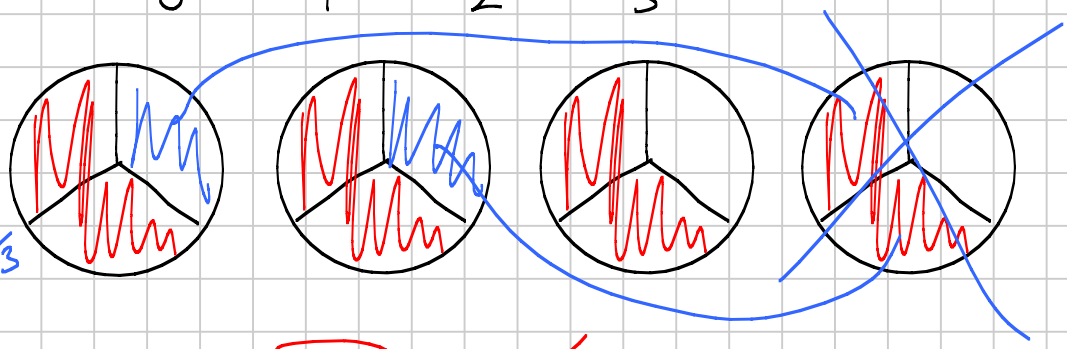
Note Title 2014-09-14

Models for multiplying whole numbers and fractions

eg) $\frac{2}{3} \times 4$

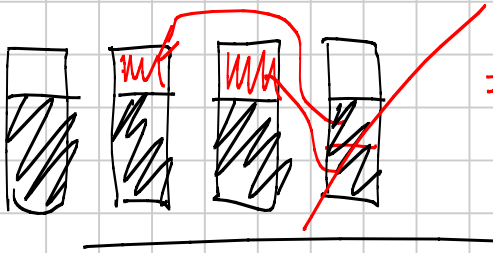
Number Line:

Circles:



$= 8/3 = 2\frac{2}{3}$

Rectangles:

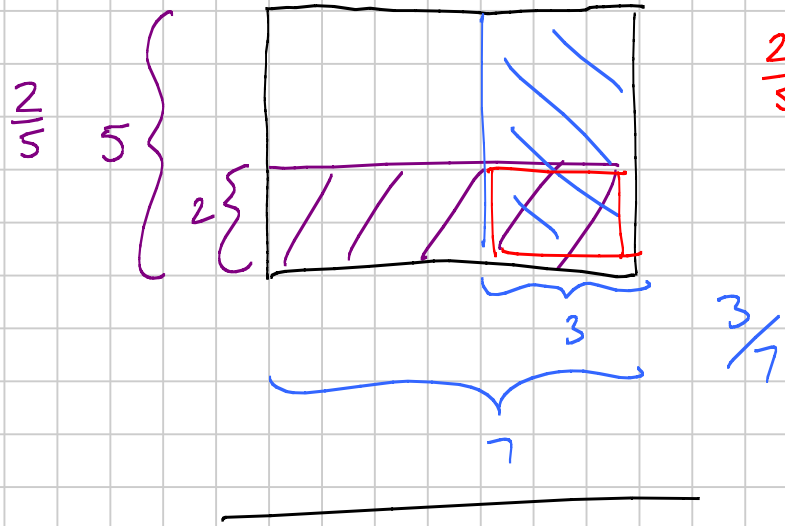


$= 8/3 = 2\frac{2}{3}$

Models for multiplying fractions

Rectangles - use denominators for # of divisions

eg) $\frac{2}{5} \times \frac{3}{7}$ (remember order doesn't matter



$\frac{2}{5} \times \frac{3}{7} = \frac{6}{35}$

Note: Another way of saying "multiply" with fractions is "of". So, "4/5 of 3/8" is "4/5 x 3/8".

Recall that multiplication is commutative.

Definition: Reciprocal is swapping the numerator and denominator.

eg) The reciprocal of $\frac{3}{4}$ is $\frac{4}{3}$.

Reciprocal Property: when multiplying a fraction by its reciprocal always results in 1 unless the fraction is 0. eg) $\frac{3}{4} \times \frac{4}{3} = 1$

Simplifying - find common factors between the numerator and denominator. eg) $\frac{20}{8} = \frac{20 \div 4}{8 \div 4} = \frac{5}{2}$

common factor

Converting Mixed to Improper Fractions

$a\ ^{b}/_{c} = \frac{a \times c + b}{c}$

Converting Improper to Mixed Fractions

$\frac{a}{b} = q\ ^{r}/_{b}$ q - quotient, r - remainder

Mixed Numbers need to be converted to improper fractions before multiplying.

Simple divisibility rules:

Even numbers are divisible by 2.

Numbers ending in 0 or 5 are divisible by 5

If the sum of the digits is divisible by 3, then the number is divisible by 3.