

# Lesson 3-1

10/11/11 Fractions and Decimals (p121-127)

Fraction: }  
Decimal: } → Part of a whole

$$\frac{7}{10} = .7$$

$\frac{4}{5} = \frac{8}{10}$  →  $\frac{4}{5} = .8$

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Repeating Decimal: a never-ending decimal  
ex:  $0.6666666\dots$  or  $0.\overline{6}$  ← symbol

ex:  $36.949494\dots$   $36.\overline{94}$

ex:  $125.03828282\dots$

↑  
vs.  
↓

$125.0382$

Terminating Decimal: a decimal that ends  
(a remainder of zero)

Write each fraction as a decimal.

ex:  $\frac{7}{8}$

Remember: A fraction bar is the same as a division...  
So, when in doubt, **DIVIDE**

$8 \overline{) 7.000}$

8.75

8 | 7.000  
 -6 4  
 ---  
 60  
 -56  
 ---  
 40  
 -40  
 ---  
 0

ex:  $\frac{5}{11}$

0.4545

$11 \overline{) 5.0000}$

0.4545

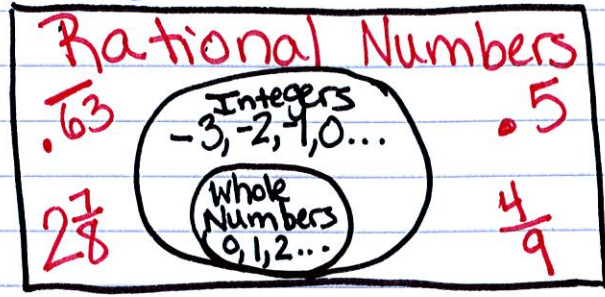
11 | 5.0000  
 -4 4  
 ---  
 60  
 -55  
 ---  
 50  
 -44  
 ---  
 60

# Lesson 3-2

10/14/11 Rational Numbers (p128-133)

Rational Numbers: any number that can be written as a fraction

- ↳ Decimals that are terminating or repeating
- ↳ Fraction
- ↳ Whole Numbers
- ↳ Integers



Irrational Numbers

Irrational Numbers: non-repeating, non-terminating

ex:  $\pi = 3.14 \dots$

$\sqrt{2}$

$3.12122222 \dots$

$3.1212$

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Identify all sets to which the number belongs:

a)  $-2\frac{6}{11}$  = rational

b)  $1.313313331\dots$  = irrational

c)  $-8$  = integer, rational

d)  $45$  = whole number, integer, rational

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Write each number as a fraction.

ex:  $-10\frac{7}{8} = \frac{-87}{8}$  (improper) ←

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Write each decimal as a fraction

ex:  $3.625$

$3\frac{625}{1,000} = 3\frac{5}{8}$

① Read aloud for terminating decimals

② Reduce

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\* For repeating decimals

ex:  $\overline{.6} = N = .66666\dots$  ① assign the decimal a variable

$$N = .6666\dots$$

$$10N = 10(.6666\dots)$$

$$\begin{array}{r} 10N = 6.6666\dots \\ - N = .6666\dots \\ \hline \end{array}$$

$$\cancel{9}N = 6$$

$$\cancel{9} \quad \cancel{9}$$

$$N = \frac{2}{3}$$

② Multiply each side by 10  
because 1 digit repeats

③ Subtract  $1N$  from each side. This will eliminate the repeating decimal.

④ Divide each side by the number in front of the  $N$

# Lesson 3-6 (p 153-158)

## 10/12/11 Adding & Subtracting Unlike Fractions

ex:

$$\begin{array}{r} 10\frac{1}{2} \times \frac{3}{3} \\ + 7\frac{1}{3} \times \frac{2}{2} \\ \hline 17\frac{5}{6} \end{array}$$

① Find the LCD & change to like fractions.

② Apply the rules (Song) for adding and subtracting positive/negative #'s

ex:  $-\frac{5}{6} + \frac{1}{8} \dots$

$$\frac{-5}{6} = \frac{-20}{24}$$

$$\frac{1}{8} = \frac{3}{24}$$

$$\hline -\frac{17}{24}$$

ex:  $-\frac{5}{6} + -\frac{1}{8} \dots$

$$\frac{-5}{6} = \frac{-20}{24}$$

$$\frac{-1}{8} = \frac{-3}{24}$$

$$\hline -\frac{23}{24}$$

ex:  $6\frac{4}{5} = \frac{32}{40}$   
 $+ 2\frac{3}{8} = \frac{-15}{40}$   


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 $4\frac{17}{40}$

ex:  $\frac{11}{14} + \frac{-1}{6}$

$\frac{11}{14} = \frac{33}{42}$   
 $\frac{-1}{6} = \frac{-7}{42}$   


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 $\frac{26}{42} = \frac{13}{21}$

ex:  $-6\frac{2}{7} = \frac{4}{14}$   
 $+ -5\frac{3}{14} = \frac{3}{14}$   


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$-11\frac{7}{14}$   
 $-11\frac{1}{2}$

# Lesson 3-3

10/12/11 Multiplying Rational Numbers (pg 134-139)

ex:  $\frac{1}{\cancel{6}_3} \times \frac{\cancel{2}^1}{3} = \boxed{\frac{1}{9}}$

ex:  $\frac{\cancel{13}}{4} \left(-\frac{\cancel{7}^1}{\cancel{9}_3}\right) = \boxed{-\frac{7}{12}}$  ...  ~~$\frac{-7}{12}$~~   ~~$\frac{7}{12}$~~

ex:  $-2\frac{1}{3} \cdot -2\frac{5}{7}$

$\downarrow \quad \downarrow$   
 $-\frac{\cancel{1}^1}{\cancel{3}} \cdot -\frac{\cancel{19}}{\cancel{7}_1} = \frac{19}{3} = \boxed{6\frac{1}{3}}$

$3 \overline{) 19} \begin{array}{r} 6 \\ \underline{18} \\ 1 \end{array}$

ex:  $a = \frac{6}{7} \quad b = -\frac{4}{9}$

$\frac{1}{2} ab$

$\frac{1}{2} \cdot \frac{\cancel{6}^2}{7} \cdot \frac{\cancel{4}^{-2}}{\cancel{9}_3} = \boxed{\frac{-4}{21}}$

ex:  $\frac{\cancel{2}a}{\cancel{b}} \cdot \frac{\cancel{b}}{\cancel{2}d} = \boxed{\frac{a}{d}}$

ex:  $\frac{\cancel{x}^2}{\cancel{4}_1 y} \cdot \frac{\cancel{16}^4}{\cancel{3}_1 \cancel{x}} = \boxed{\frac{4xy}{3}}$

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# Lesson 3-4

## 10/18/11 Dividing Rational Numbers (p 141-146)

ex:

$$\frac{1}{2} \div \frac{-1}{10}$$

Skip ↓
flip ↓
flip ↓

$$\frac{1}{2} \times \frac{-10}{1} = \frac{-10}{2} = \frac{-5}{1} = \boxed{-5}$$

$-\frac{1}{10}$  and  $-\frac{10}{1}$  are reciprocals of each other. A synonym for reciprocal is **multiplicative inverse**.

Dividing fractions is the same as multiplying by the reciprocal.

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ex:  $18\frac{1}{3} \div -4\frac{1}{6}$

$$\frac{55}{3} \div \frac{-25}{6}$$

$$\frac{55}{3} \times \frac{-6}{25} = \frac{-22}{5} = \boxed{-4\frac{2}{5}}$$

$$\begin{array}{r} 4 \\ 5 \overline{) 22} \\ \underline{20} \\ 2 \end{array}$$

Make the mixed numbers improper **BEFORE** "skip, flip, flip"

ex:  $\frac{ab}{8} \div \frac{b}{a} = \boxed{\frac{a^2}{8}}$

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