

Name:

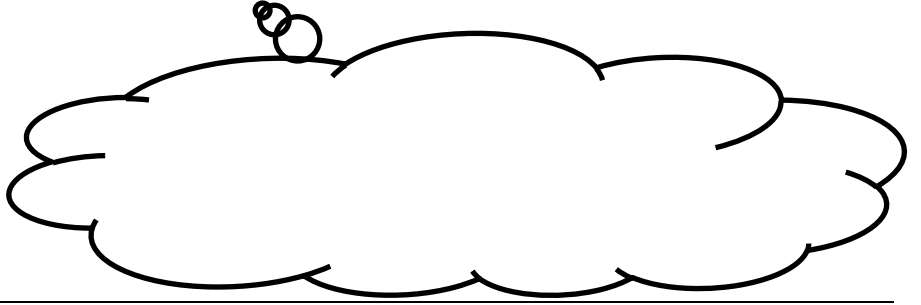
Date:

Lesson 4-4

Simplifying Fractions

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12 ← _____
18 ← _____

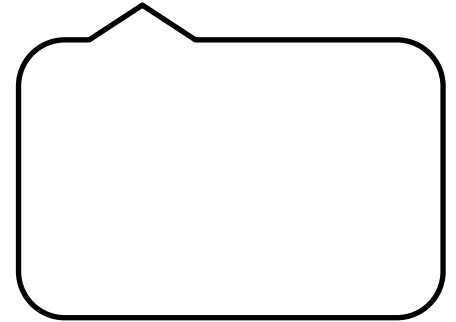
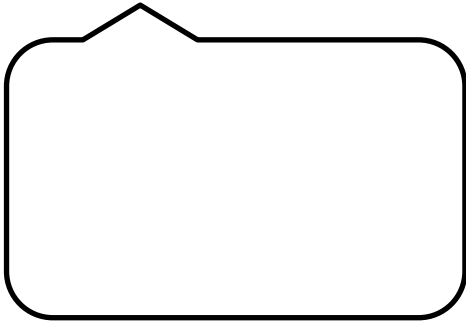


Option 1:

Option 2:

*

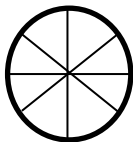
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Equivalent Fractions:



Ex: Write 2 equivalent fractions for $\frac{3}{4}$

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

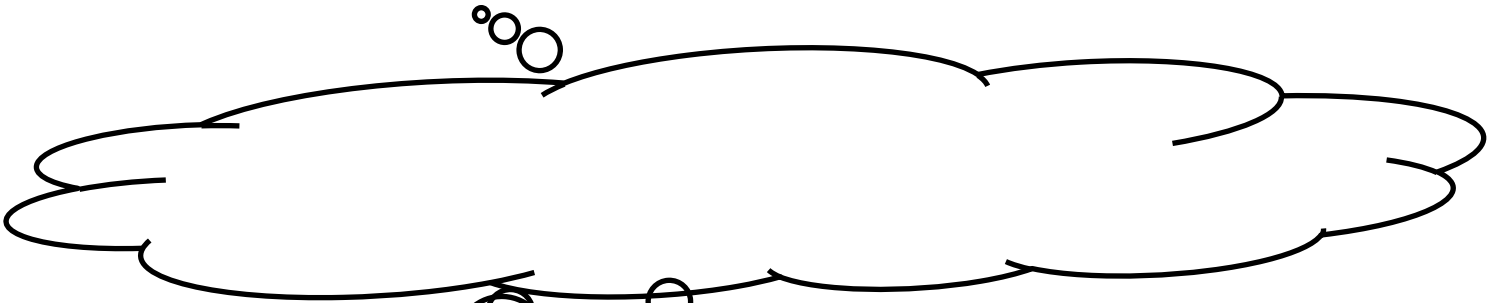
$$\frac{3}{4} =$$

Date: _____

Lesson 5-1

Estimating With Fractions

Estimate:



For Fractions:

For Mixed Numbers:

Estimate, then solve

Date: _____

Lesson 5-2

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Adding and Subtracting Fractions

Fraction:

$$\frac{3}{4} \longrightarrow$$

$$\frac{27}{5} \longrightarrow$$

$$6 \longrightarrow$$

$$6\frac{3}{4} \longrightarrow$$

- Change to a Mixed or Whole Number

Ex 1: $\frac{27}{5}$

Ex 2: $\frac{51}{2}$

- Change to an Improper Fraction.

Ex 1: $7\frac{3}{4}$

Ex 2: $62\frac{1}{3}$

Ex 3: 27

- Find r for the equivalent fractions.

$$\frac{6}{7} = \frac{r}{63}$$

- Least Common Multiple

Ex 1: 4, 6

Ex 2: 32, 64

Ex 3: 2, 8, 12

- Add or Subtract with Like Denominators

$$\underline{\text{Ex 1: } 7 \frac{2}{11}}$$

$$+ 9 \frac{8}{11}$$

$$\underline{\text{Ex 2: } 10 \frac{3}{14}}$$

$$- 8 \frac{1}{14}$$

- Add or Subtract with Unlike Denominators

$$\underline{\text{Ex 1: } \frac{2}{7}}$$

$$+ \frac{9}{14}$$

$$\underline{\text{Ex 2: } \frac{1}{4}}$$

$$- \frac{1}{18}$$

$$\underline{\text{Ex 3: } \frac{5}{12}}$$

$$+ \frac{15}{16}$$

$$\underline{\text{Ex 4: } \frac{2}{3}}$$

$$- \frac{3}{18}$$

$$\underline{\text{Ex 5: } \frac{2}{3}}$$

$$+ \frac{4}{15}$$

$$\underline{\text{Ex 6: } \frac{1}{4}}$$

$$- \frac{1}{12}$$

Date: _____

Lesson 5-3
Adding/Subtracting Mixed Numbers

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Option 1:

Option 2:

EX: 1

$$7\frac{3}{4} + 2\frac{2}{3}$$

EX: 2

$$4\frac{7}{8} - 1\frac{3}{4}$$

EX: 3

$$7\frac{1}{6} - 4\frac{3}{4}$$

$$\boxed{\text{EX: 4}} \quad 15\frac{2}{3} - 7\frac{1}{5}$$

$$\boxed{\text{EX: 5}} \quad 10\frac{3}{8} + 7\frac{11}{12}$$

$$\boxed{\text{EX: 6}} \quad 7\frac{7}{9} - 6\frac{7}{8}$$

$$\boxed{\text{EX: 7}} \quad 8\frac{3}{4} + 3\frac{2}{5}$$

Date: _____

Lesson 5-3

pg. 242-246

Add and Subtracting Fractions Cheat Sheet

STEPS	What do I do?	Example: $10\frac{3}{4} - 5\frac{3}{8}$
Step 1:		
Step 2:		
Step 3:		
Step 4:		
Step 5:		

Date: _____

Multiplying Fractions

Multiplying Fractions is no _____.
_____ times _____.
_____ times _____.



Example: $\frac{1}{5} \cdot \frac{8}{9} =$ _____

When _____ fractions,
_____ the numerators
and _____ the denominators.

Check:

- Can I reduce?
- Is it Improper?

Example: $2 \cdot \frac{3}{4} =$ _____

Change _____
Or _____
To _____
FIRST!!!

Example: $\frac{3}{8} \cdot \frac{10}{27} =$ _____

To _____, look **DIAGONALLY** to see if the _____/_____ pair reduce.

Example: $3\frac{1}{4} \cdot 2\frac{2}{3} = \underline{\hspace{2cm}}$

↓ ↓

Change to

FIRST!!!

Check for understanding

1) $\frac{1}{4} \cdot \frac{2}{3} =$

2) $3\frac{3}{4} \cdot 1\frac{3}{7} =$

Date: _____

Dividing Fractions

1. Change into _____
2. Change the sign to _____
3. Flip it! – Flip the _____ number.

Reciprocal: _____

→ Also known as _____

Give the reciprocal/multiplicative inverse:

1. $\frac{9}{25} \longrightarrow$

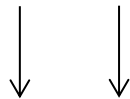
2. $48 \longrightarrow$

3. $8\frac{1}{4} \longrightarrow$

4. $5 \longrightarrow$

5. $3\frac{2}{5} \longrightarrow$

Example: $4\frac{1}{2} \div 8\frac{1}{4} =$ _____



Check:

- Changed to Improper fraction
- Change divide to multiply
- Reciprocal of second number
- Cross cancel
- Top time Top, Bottom Times Bottom
- Reduce
- Change in mixed number

Another Saying: SKIP, FLIP, FLIP

Example: $\frac{1}{4} \div 2\frac{1}{4} = \underline{\hspace{2cm}}$

Example: $1\frac{3}{4} \div 3\frac{2}{3} = \underline{\hspace{2cm}}$

Check for understanding

Show work 😊

1. $2 \div 4\frac{2}{3} = \underline{\hspace{2cm}}$

2. $\frac{1}{9} \div \frac{8}{27} = \underline{\hspace{2cm}}$

Name: 5th

Date: 10/20/14

Lesson 4-4

Chapter 5

pg 192-195

Simplifying Fractions

$$\frac{12}{18}$$

Numerator
Denominator

Bar (Divide) to simplify fractions

Option 1: Tradition

$$* \frac{12 \div 2}{18 \div 2} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$$

Must \div by the same Number

Option 2: Cake Method

$$* \begin{array}{r} 2 \overline{) 12} \quad 18 \\ 3 \overline{) 6} \quad 9 \\ \hline 2 \quad 3 \end{array}$$

$$\frac{2}{3}$$

$$\frac{5}{15} \div 5 = \frac{1}{3}$$

Final Answer Must be in Lowest terms

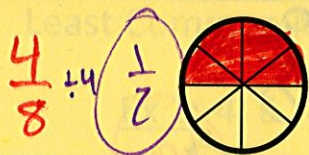
$$* \frac{45}{75} \div 5 = \frac{9}{15} \div 3 = \frac{3}{5}$$

$$* \begin{array}{r} 5 \overline{) 45} \quad 75 \\ 3 \overline{) 9} \quad 15 \\ \hline 3 \quad 5 \end{array}$$

$$\frac{3}{5}$$

Equivalent Fractions:

2 Fractions that have the SAME Value



Ex: Write 2 equivalent fractions for $\frac{3}{4}$

$$\frac{3}{4} = \frac{15}{20}$$

*5

$$\frac{3}{4} = \frac{30}{40}$$

*10

Date: 10/21

Lesson 5-1

Estimating With Fractions

Estimate: a close guess to the actual value (approximate)

USE ROUNDING TO Estimate the Fractions

For Fractions:

0, $\frac{1}{2}$, 1

For Mixed Numbers:

Nearest whole #

- ① $\frac{11}{12} \rightarrow$ 1
- ② $\frac{5}{9} \rightarrow$ $\frac{1}{2}$
- ③ $\frac{1}{10} \rightarrow$ 0

- ④ $4\frac{1}{6} \rightarrow$ 4
- ⑤ $18\frac{7}{8} \rightarrow$ 19
- ⑥ $2\frac{4}{9} \rightarrow$ 2

Estimate, then solve

$$\frac{11}{12} - \frac{1}{10} \Rightarrow 1 - 0 = \boxed{1}$$

$$18\frac{7}{8} \cdot \frac{9}{10} = 19 \cdot 1 = \boxed{19}$$

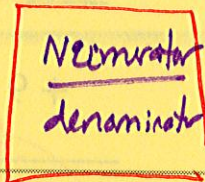
$$4\frac{1}{6} + \frac{5}{9} = 4 + \frac{1}{2} = \boxed{4\frac{1}{2}}$$

$$\frac{1}{8} \div \frac{17}{20} = 0 \div 1 = \boxed{0}$$

Adding and Subtracting Fractions

Fraction:

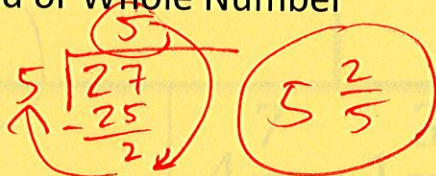
a part of a whole
Numerator
denominator



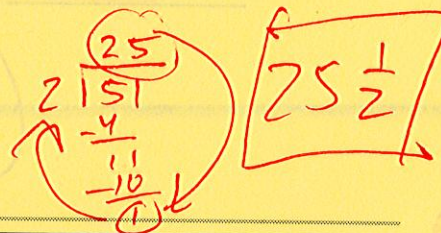
$\frac{3}{4}$	→ Proper Fraction (N < D)	$\frac{27}{5}$	→ Improper Fraction (N > D)
6	→ whole #	$6\frac{3}{4}$	→ mixed #

- Change to a Mixed or Whole Number

Ex 1: $\frac{27}{5}$



Ex 2: $\frac{51}{2}$



- Change to an Improper Fraction.

Ex 1: $7\frac{3}{4}$

$\frac{31}{4}$

Ex 2: $62\frac{1}{3}$

$\frac{187}{3}$

Ex 3: 27

$\frac{27}{1}$

- Find r for the equivalent fractions.

$\frac{6 \times 9}{7} = \frac{r}{63}$

$r = 54$

- Least Common Multiple → *Briser*

Ex 1: 4, 6

4, 8, 12, 16, 20, 24, ...
 6, 12, 18, 24, 30

12

Ex 2: 32, 64

32, 64, 96, ...
64, 128, ...

64

Ex 3: 2, 8, 12

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, ...
8, 16, 24, 32, 40, ...
 12, 24, 36, 48, ...

24

• Add or Subtract with Like Denominators

Ex 1: $7 \frac{2}{11}$

+ $9 \frac{8}{11}$

$16 \frac{10}{11}$

check
 is it improper?
 can you reduce?

Ex 2: $10 \frac{3}{14}$

- $8 \frac{1}{14}$

$2 \frac{2}{14} = 2 \frac{1}{7}$

• Add or Subtract with Unlike Denominators



Ex 1: $\frac{2}{7} \times 2 \quad \frac{4}{14}$
 + $\frac{9}{14}$

$\frac{13}{14}$



Ex 2: $\frac{1}{4} \times 9 \quad \frac{9}{36}$
 - $\frac{1}{18} \times 2 \quad \frac{2}{36}$

$\frac{7}{36}$

Make common denominators

12, 24, 36, 48, 60, ...
 16, 32, 48,

Ex 3: $\frac{5}{12} \times 4 \quad \frac{20}{48}$
 + $\frac{15}{16} \times 3 \quad \frac{45}{48}$

$\frac{65}{48} = 1 \frac{17}{48}$

Ex 4: $\frac{2}{3} \times 6 \quad \frac{12}{18}$
 - $\frac{3}{18}$

$\frac{9}{18} = \frac{1}{2}$

Ex 5: $\frac{2}{3} \times 5 \quad \frac{10}{15}$
 + $\frac{4}{15} \quad \frac{4}{15}$
 + $\frac{1}{5} \times 3 \quad \frac{3}{15}$

$\frac{17}{15} = 1 \frac{2}{15}$

Ex 6: $\frac{1}{4} \times 3 \quad \frac{3}{12}$
 - $\frac{1}{12}$

$\frac{2}{12} = \frac{1}{6}$

Adding/Subtracting Mixed Numbers

Option 1: *Mixed #'s*

Option 2: *Improper*

EX: 1

$$7\frac{3}{4} + 2\frac{2}{3}$$

$$7\frac{9}{12} + 2\frac{8}{12}$$

$$9\frac{17}{12} = 10\frac{5}{12}$$

$$\boxed{10\frac{5}{12}}$$

$$\frac{31}{4} + \frac{8}{3}$$

$$\frac{93}{12} + \frac{32}{12} = \frac{125}{12}$$

$$\boxed{10\frac{5}{12}}$$

EX: 2

$$4\frac{7}{8} - 1\frac{3}{4}$$

$$4\frac{7}{8} - 1\frac{6}{8}$$

$$\boxed{3\frac{1}{8}}$$

$$\frac{39}{8} - \frac{7}{4}$$

$$\frac{39}{8} - \frac{14}{8} = \frac{25}{8}$$

$$\boxed{3\frac{1}{8}}$$

EX: 3

$$7\frac{1}{6} - 4\frac{3}{4}$$

$$7\frac{2}{12} - 4\frac{9}{12}$$

$$6\frac{14}{12} - 4\frac{9}{12}$$

$$\boxed{2\frac{5}{12}}$$

$$\frac{43}{6} - \frac{19}{4}$$

$$\frac{86}{12} - \frac{57}{12} = \frac{29}{12}$$

$$\boxed{2\frac{5}{12}}$$

EX: 4

$$15\frac{2}{3} - 7\frac{1}{5}$$

$$\begin{array}{r}
 15\frac{2}{3} * 5 \\
 - 7\frac{1}{5} * 3 \\
 \hline
 8\frac{7}{15}
 \end{array}$$

EX: 5

$$10\frac{3}{8} + 7\frac{11}{12}$$

$$\begin{array}{r}
 10\frac{3}{8} * 3 \\
 + 7\frac{11}{12} * 2 \\
 \hline
 17\frac{31}{24} \Rightarrow 17 + 1\frac{7}{24} \\
 \hline
 18\frac{7}{24}
 \end{array}$$

EX: 6

$$7\frac{7}{9} - 6\frac{7}{8}$$

$$\begin{array}{r}
 7\frac{7}{9} * 8 \\
 - 6\frac{7}{8} * 9 \\
 \hline
 6\frac{63}{72}
 \end{array}
 \Rightarrow
 \begin{array}{r}
 11\frac{128}{72} \\
 - 6\frac{63}{72} \\
 \hline
 6\frac{65}{72}
 \end{array}
 \quad
 \begin{array}{r}
 72 \\
 + 56 \\
 \hline
 128 \\
 - 63 \\
 \hline
 65
 \end{array}$$

EX: 7

$$8\frac{3}{4} + 3\frac{2}{5}$$

$$\begin{array}{r}
 8\frac{3}{4} * 5 \\
 + 3\frac{2}{5} * 4 \\
 \hline
 11\frac{23}{20} = 11 + 1\frac{3}{20} \\
 \hline
 12\frac{3}{20}
 \end{array}$$

Vertically!
Borrow if need

Date: _____

Multiplying Fractions

Multiplying Fractions is no Problem.

top times top.

Bottom times Bottom.



Example: $\frac{1}{5} \cdot \frac{8}{9} = \frac{1 \cdot 8}{5 \cdot 9} = \frac{8}{45}$

When multiplying fractions,
multiply the numerators
and multiply the denominators.

Check:

- Can I reduce?
- Is it Improper?

Example: $2 \cdot \frac{3}{4} =$ _____

$\frac{2}{1} \cdot \frac{3}{4} = \frac{2 \cdot 3}{1 \cdot 4} = \frac{6}{4} \div 2 = \frac{3}{2} = 1\frac{1}{2}$

Change mixed #'s
Or whole #'s
To Improper Fractions
FIRST!!!

Example: $\frac{3}{8} \times \frac{10}{27} = \frac{1 \cdot 5}{4 \cdot 9} = \frac{5}{36}$

$\frac{3 \cdot 10}{8 \cdot 27} = \frac{30}{216} \div 3 = \frac{10}{72} \div 2 = \frac{5}{36}$

look Diagonally
to Cancel

$\frac{5}{27} \cdot \frac{10}{8} = \frac{50}{216} = \frac{25}{108}$

Lesson 5-5

Ex:

$$\frac{5}{7} \cdot \frac{28}{30}$$

4
6

To CROSS ^{cancel}, look **DIAGONALLY** to see if the numerator / Denominator pair reduce.

$$\frac{1 \cdot 4}{1 \cdot 6} = \frac{4}{6} = \left(\frac{2}{3} \right)$$

Example: $3\frac{1}{4} \cdot 2\frac{2}{3} =$ _____

$$3 \overline{) 26} \begin{array}{r} 8 \\ -24 \\ \hline 26 \end{array}$$

$$\frac{13}{4} \cdot \frac{8}{3} = \frac{13 \cdot 2}{1 \cdot 3} = \frac{26}{3}$$

Change to improper fraction
FIRST!!!

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

Check for understanding

1) $\frac{1}{4} \cdot \frac{2}{3} = \frac{1 \cdot 2}{4 \cdot 3} = \frac{2}{12} \div 2 = \frac{1}{6}$

2) $3\frac{3}{4} \cdot 1\frac{3}{7} =$

$$\frac{15}{4} \cdot \frac{10}{7} = \frac{15 \cdot 10}{4 \cdot 7} = \frac{150}{28} \div 2 = \frac{75}{14} = 5\frac{5}{14}$$

$$14 \overline{) 75} \begin{array}{r} 5 \\ -70 \\ \hline 5 \end{array}$$

Date: _____

Dividing Fractions

1. Change into Improper Fractions
2. Change the sign to * (multiply)
3. Flip it! – Flip the 2nd number.

Reciprocal: $\frac{4}{7} \Rightarrow \frac{7}{4}$ or $-\frac{3}{5} \Rightarrow -\frac{5}{3}$

→ Also known as multiplicative Inverse

Give the reciprocal/multiplicative inverse:

Leave Improper

1. $\frac{9}{25} \rightarrow \frac{25}{9}$

4. $5 \rightarrow \frac{1}{5}$

2. $48 \rightarrow \frac{1}{48}$

5. $3\frac{2}{5} \rightarrow \frac{5}{17}$

3. $8\frac{1}{4} \rightarrow \frac{4}{33}$
 $\frac{33}{4}$

$\frac{17}{5}$

Example: $4\frac{1}{2} \div 8\frac{1}{4} =$ _____

\downarrow \downarrow
 $\frac{9}{2} \div \frac{33}{4}$
 ①
 $\frac{3 \cancel{9}}{2} \cdot \frac{4^2}{\cancel{33}^2}$
 $\frac{3 \cdot 2}{1 \cdot 11} = \frac{6}{11}$

Check:

- Changed to Improper fraction
- Change divide to multiply
- Reciprocal of second number
- Cross cancel
- Top time Top, Bottom Times Bottom
- Reduce
- Change in mixed number

Another Saying: SKIP, FLIP, FLIP

Example: $\frac{1}{4} \div 2\frac{1}{4} =$ _____

$$\frac{1}{4} \div \frac{9}{4}$$
$$\frac{1}{4} \cdot \frac{4}{9}$$
$$\frac{1 \cdot 1}{1 \cdot 9} = \left(\frac{1}{9}\right)$$

Example: $1\frac{3}{4} \div 3\frac{2}{3} =$ _____

$$\frac{7}{4} \div \frac{11}{3}$$
$$\frac{7}{4} \cdot \frac{3}{11}$$
$$\frac{7 \cdot 3}{4 \cdot 11} = \left(\frac{21}{44}\right)$$

Check for understanding

Show work ☺

1. $2 \div 4\frac{2}{3} =$ $\left(\frac{3}{7}\right)$

$$1 \frac{2}{1} \cdot \frac{3}{14}$$
$$\frac{1 \cdot 3}{1 \cdot 7}$$

2. $\frac{1}{9} \div \frac{8}{27} =$ $\left(\frac{3}{8}\right)$

$$1 \frac{1}{9} \cdot \frac{27}{8}$$
$$\frac{1 \cdot 3}{1 \cdot 8}$$