Fractions

Fractions = Division

$$\frac{1}{2} = 1 \div 2 = 2\overline{)1}$$

Numerator → Dividend

$$\frac{1}{2} = 0.5$$

← Answer, Quotient, Decimal

Denominator → Divisor

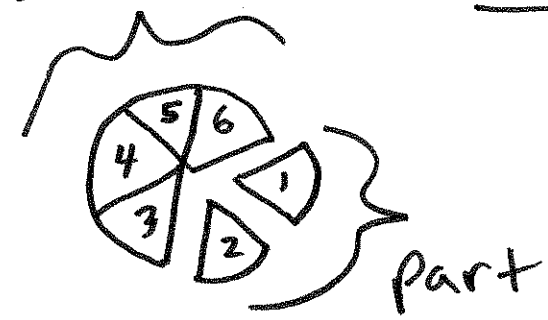
Types of Fractions

Proper Fraction	Improper Fraction	Mixed Number	Like Fractions	Unlike Fractions
$\frac{1}{2}$	$\frac{2}{1}$	$1\frac{1}{2} = 1 + \frac{1}{2}$	$\frac{1}{2}$ and $\frac{3}{2}$	$\frac{1}{2}$ and $\frac{1}{4}$
Numerator smaller than Denominator	Numerator is Bigger than Denominator	Integer and Fraction shown Together	Denominators the Same in two or more Fractions (equal)	Denominators NOT Same in two or more Fractions (NOT equal)

Fractions = "Parts of whole"

* Fractions represent parts of a whole (Total)

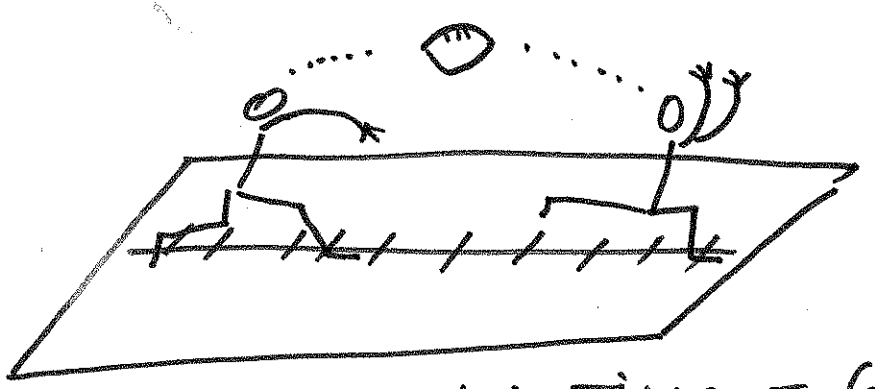
Pizza



$$\frac{\text{2 pieces of pizza}}{\text{6 Total pieces of Pizza}}$$

$$\frac{2}{6} = \frac{\cancel{2} * 1}{\cancel{2} * 3} = \frac{1}{3} \text{ of Total pizza}$$

Football



whole

part

Football Game Total Time = 60 minutes

Number of minutes completed = 45 minutes

$$\frac{45}{60} = \frac{\cancel{15} * 3}{\cancel{15} * 4} = \frac{3}{4} \text{ of Total Game Time}$$

student scores

Assignment	Max points	Your Score
Test 1	100	80
Test 2	100	75
Test 3	100	100
Test 4	100	95
Total	400	350

whole or total

part

$$\frac{350}{400} = \frac{35 * \cancel{10}}{40 * \cancel{10}} = \frac{35}{40} = \frac{\cancel{5} * 7}{\cancel{5} * 8} = \frac{7}{8}$$

$$\frac{350}{400} = \frac{35}{40} = \frac{7}{8} = 0.875$$

$0.875 \Rightarrow 87.5\%$ or $\dfrac{7 \text{ points}}{8 \text{ possible points}}$

Factors

Define Factor:

* Factors are numbers we can multiply together to get another number (product).

Factors	Product
$2 * 12 =$	24
$4 * 6 =$	24
$2 * 2 * 6 =$	24
$2 * 2 * 2 * 3 =$	24

Prime Number

Define Prime Number:

* A Prime Number is a whole Number greater than 1 whose only factors are: 1 and itself

Prime Number

Define Prime Number:

* A Prime Number is a whole Number greater than 1 whose ONLY factors are:

They must be diffent { 1 and itself

Number	Possible Factors & Product	Prime ?
1	1 * 1	Not Prime
2	1 * 2	✓
3	1 * 3	✓
4	1 * 4 2 * 2	Not Prime
5	1 * 5	✓
6	1 * 6 2 * 3	Not Prime
⋮		

List of Primes

2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
53
59
61 < 67
71
73
79

83
89
97
101
103
107
109
113
127
131
137
139
149
151
157
163
167
173
179
⋮

Find All Prime Factors

What are Prime Factors in 27?

Start with smallest prime & move up, checking whether it can divide into the number evenly (with No remainder).

2? No

$$\begin{array}{r|l} 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

Prime Factors are:

3 * 3 * 3

What are Prime Factors in 56?

$$\begin{array}{r|l} 2 & 56 \\ \hline 2 & 28 \\ \hline 2 & 14 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

Prime Factors are:

2 * 2 * 2 * 7

Reduce Fractions

* Steps to Reduce Fractions

1. Break apart Numerator & denominator into Prime Factors
2. cancel when a Prime Factor is in both the numerator & denominator

Example 1: Reduce $\frac{16}{26}$

$$\frac{16}{26} = \frac{\cancel{2} * 2 * 2 * 2}{\cancel{2} * 13} = \frac{8}{13}$$

$$\begin{array}{r|l} 2 & 16 \\ 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 26 \\ 13 & 13 \\ & 1 \end{array}$$

Example 2: $\frac{45}{60}$ (Reduce)

$$\frac{45}{60} = \frac{3 * \cancel{3} * \cancel{5}}{2 * 2 * \cancel{3} * \cancel{5}} = \frac{3}{4}$$

$$\begin{array}{r|l} 3 & 45 \\ 3 & 15 \\ 5 & 5 \\ & 1 \end{array} \qquad \begin{array}{r|l} 2 & 60 \\ 2 & 30 \\ 3 & 15 \\ 5 & 5 \\ & 1 \end{array}$$

** you can do it this way too:

$$\frac{45}{60} = \frac{3 * \cancel{15}}{4 * \cancel{15}} = \frac{3}{4}$$

Example 3:

$$\frac{30{,}000}{600} = \frac{300 * \cancel{100}}{6 * \cancel{100}} = \frac{300}{6}$$

or

$$* \quad \frac{30{,}000}{600} = \frac{30\cancel{000}}{6\cancel{00}} = \frac{300}{6}$$

$$\frac{300}{6} = \frac{\cancel{3} * 100}{\cancel{3} * 2} = \frac{100}{2} =$$

$$\frac{50 * \cancel{2}}{\cancel{2}} = \frac{50}{1} = 50$$

Reducing Rule for zeros at end of both Numerator & Denominator:

you can remove one or more zeros from end of Numerator AND Denominator provided that the same number of zeros are removed from both AND that they are from end of both numbers.

Ratios

Define Ratio: A ratio is a quotient of two quantities that is used to compare the quantities

Example 1:

$$\frac{300 \text{ miles}}{5 \text{ hours}} = \frac{\cancel{5} * 60 \text{ Miles}}{\cancel{5} \text{ hours}} = \frac{60 \text{ Miles}}{1 \text{ hour}} = 60 \text{ miles per hour}$$

Example 2:

$$\frac{\$15{,}000 \text{ Profit}}{\$100{,}000 \text{ Revenue}} = \frac{\$15{,}\cancel{000} \text{ Profit}}{\$100{,}\cancel{000} \text{ Revenue}} = \frac{\$15 \text{ profit}}{\$100 \text{ Revenue}}$$

$$= \frac{\$\ 3 * \cancel{5} \text{ profit}}{\$\ 2*2*5*\cancel{5} \text{ Revenue}} = \frac{\$3 \text{ Profit}}{\$20 \text{ Revenue}} = \frac{\$0.15 \text{ profit}}{\$1 \text{ Revenue}}$$

Meaning of Ratios Rule:

1. Keep units in Numerator & Denominator
2. Keep a 1 in Denominator

Reducing with same units in Denominator & Numerator

Rule: Just like with Prime Factors, if you have same units in numerator & Denominator you can cancel them.

<u>Example:</u>

$$\frac{12 \text{ meters}}{4 \text{ meters}} = \frac{3 * \cancel{4} \ \cancel{\text{meters}}}{\cancel{4} \ \cancel{\text{meters}}} = 3$$

Change Improper Fraction to Mixed Number

*** Steps:**

1. Do Division
2. Put Remainder over Denominator

Example:

$$\frac{8}{3} = \begin{array}{r} 2 \text{ R}2 \\ 3\overline{)8} \\ -6 \\ \hline 2 \end{array} = 2\frac{2}{3}$$

***** OR:**

$$\frac{8}{3} = \frac{6+2}{3} = \frac{3+3+2}{3}$$

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

$$= 1 + 1 + \frac{2}{3}$$

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

Convert Mixed Numbers to Improper Fractions

*** steps:**

1. multiply denominator & whole Number, then add the Numerator to get the New Numerator
2. Place New Numerator over Denominator

Example: $2\frac{2}{3}$

$$2\frac{2}{3} = \frac{3*2+2}{3} = \frac{8}{3}$$

Multiply Fractions

*** steps:**

1. multiply Numerators
2. Multiply Denominators
3. Reduce Fraction

Example 1: $\frac{6}{8} * \frac{2}{12}$

$$\frac{6}{8} * \frac{2}{12} = \frac{6 * 2}{8 * 12} = \frac{12}{96} = \frac{\cancel{2} * \cancel{2} * \cancel{3}}{2 * 2 * 2 * \cancel{2} * \cancel{2} * \cancel{3}}$$

$$= \frac{1}{2 * 2 * 2} = \frac{1}{8}$$

OR

$$\frac{6}{8} * \frac{2}{12} = \frac{\overset{6 \to 1}{\cancel{6}} * 2}{8 * \underset{6 \to 2}{\cancel{12}}} = \frac{1 * \cancel{2}}{8 * \cancel{2}}$$

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

OR

$$\frac{\overset{6 \to 1}{\cancel{6}}}{8} * \frac{\overset{2 \to 1}{\cancel{2}}}{\underset{\underset{2 \to 1}{6 \to \cancel{2}}}{\cancel{12}}} = \frac{1 * 1}{8 * 1} = \frac{1}{8}$$

Example 2:

$\frac{1}{2}$ of your paycheck ($3000) went to paying Rent. How much was Rent?

$$\frac{1}{2} * \$300 = \frac{1}{2} * \frac{\$3000}{1}$$

$$= \frac{1 * \$3000}{2 * 1} = \frac{\$3000}{2} = \$1500$$

Example 3:

$$\frac{5}{12} + \frac{1}{2} * \frac{4}{6} = ?$$

$$\frac{5}{12} + \frac{1}{2} * \frac{4}{6} = \frac{5}{12} + \frac{1 * 4}{2 * 6} =$$

$$\frac{5}{12} + \frac{4}{12}$$

Divide Fractions

* steps:

1. Invert (Flip) second Fraction
2. Multiply
3. Reduce

Example 1: $\frac{6}{12} \div \frac{1}{2}$

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

Flip

Also:

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

Example 2: **Dividing & Units:**

Sioux & Abdi drove non-stop for a total of 3,000 miles and drove 60 miles per hour the whole time. How long did it take them?

$$\frac{3000 \text{ miles}}{60 \text{ miles per hour}} = \frac{3000 \text{ miles}}{\frac{60 \text{ miles}}{1 \text{ hour}}}$$

* per = division

* Invert 2nd

$$= \frac{3000 \text{ miles}}{1} \div \frac{60 \text{ miles}}{1 \text{ hour}} =$$

* units in top & bottom can cancel

$$\frac{3000 \text{ miles}}{1} * \frac{1 \text{ hour}}{60 \text{ miles}} = \frac{3000 \cancel{\text{miles}} * 1 \text{ hour}}{1 * 60 \cancel{\text{miles}}} =$$

$$\frac{300\cancel{0} \text{ hours}}{6\cancel{0}} = \frac{300 \text{ hours}}{6} = \frac{\cancel{3} * 100 \text{ hours}}{\cancel{3} * 2} = \frac{100 \text{ hours}}{2} =$$

Answer → 50 hours

Express Decimal as Fraction

Example 1 → Express .875 as a common fraction

$$.875 = \frac{.875}{1} = \frac{0.875}{1.000} = \frac{0.875}{1.000}$$

Any number divided by 1 is that number

Slide the decimal in both the numerator & denominator and the number remains the same

$$= \frac{875}{1000} = \frac{\cancel{5}*\cancel{5}*\cancel{5}*7}{\cancel{5}*\cancel{5}*\cancel{5}*2*2*2} = \frac{7}{8}$$

$$\begin{array}{r|l} 5 & 875 \\ 5 & 175 \\ 5 & 35 \\ & 7 \end{array} \qquad \begin{array}{r|l} 2 & 1000 \\ 2 & 500 \\ 2 & 250 \\ 5 & 125 \\ 5 & 25 \\ & 5 \end{array}$$

List all prime factors

OR:

$$.875 = \frac{.875}{1} = \frac{.875}{1} * 1 =$$

$$\frac{.875}{1} * \frac{1000}{1000} = \frac{875}{1000} = \frac{7}{8}$$

Any number times 1 is that number

Answer $\frac{7}{8}$

Example 2:

Express $\frac{3}{4}$ as a decimal

$$
\begin{array}{r}
.75 \\
4\overline{)3.0} \\
-\ 2\ 8 \\
\hline
20 \\
-\ 20 \\
\hline
0
\end{array}
$$

Answer: $\frac{3}{4} = .75$

Add or Subtract Like Fractions
(Denominators are Equal)

*** Steps:**

1. Add Numerators
2. Keep Same Denominator

Example 1: $\frac{2}{5} + \frac{1}{5}$

$$\frac{2}{5} + \frac{1}{5} = \frac{2+1}{5} = \frac{3}{5}$$

Example 2:

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

Example 3: (Backwards Example)

$$\frac{8}{3} = \frac{3+3+2}{3} = \frac{3}{3} + \frac{3}{3} + \frac{2}{3} = 1 + 1 + \frac{2}{3}$$

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

Add or Subtract Unlike Fractions (Denominators Not Equal)

Example 1: $\frac{5}{8} + \frac{3}{12} = ?$

* steps to add or subtract Unlike Fractions

① Break apart each denominator into Prime Factors:

Denominator	Prime Factors
8	2 * 2 * 2
12	2 * 2 * 3

$$\begin{array}{r|l} 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

② count the number of times each Prime Factor appears in each list of Prime Factors:

Denominator	Prime Factors
8	$2^1 * 2^2 * 2^3$
12	$2^1 * 2^2 * 3^1$

③ Take largest count for each unique prime number:

2 listed 3 times

3 listed 1 time

Terminology

LCD =

"Least Common Denominator"

or

"Lowest Common Denominator"

or

"Least Common Multiple"

④ write each Prime as many times as ㉑ you counted & multiply to get LCD:

$$LCD = \underbrace{2 * 2 * 2}_{} * 3 = 24$$

From previous page { 2 listed 3 times
3 listed 1 time

⑤ Determine what Factor/s each Denominator needs to become LCD:

Denominator	Prime Factors	Needs to become LCD
8	2 * 2 * 2	3
12	2 * 2 * 3	2

⑥ Multiply each Fraction by the number 1 with the goal of ending up with like denominators:

$$\frac{5}{8} + \frac{3}{12} = \frac{5}{8} * 1 + \frac{3}{12} * 1 = \frac{5}{8} * \frac{3}{3} + \frac{3}{12} * \frac{2}{2}$$

$$= \frac{5 * 3}{8 * 3} + \frac{3 * 2}{12 * 2} = \frac{15}{24} + \frac{6}{24} = \frac{15+6}{24} = \frac{21}{24} = \frac{\cancel{3} * 7}{\cancel{3} * 8} = \frac{7}{8}$$

same Example 1 with Short Method:

$$\frac{5}{8} + \frac{3}{12} = ?$$

Denominator	Prime Factors	Needs to Become LCD ?
8	2 * 2 * 2	3
12	2 * 2 * 3	2

$$LCD = 2*2*2*3 = 24$$

$$\frac{5}{8} * \frac{1}{} + \frac{3}{12} * \frac{1}{} = \frac{5}{8} * \frac{3}{3} + \frac{3}{12} * \frac{2}{2}$$

$$= \frac{5*3}{8*3} + \frac{3*2}{12*2} = \frac{15}{24} + \frac{6}{24} = \frac{15+6}{24}$$

$$= \frac{21}{24} = \frac{\cancel{3}*7}{\cancel{3}*2*2*2} = \frac{7}{8}$$

Example 2:

$$\frac{2}{12} + \frac{1}{8} + \frac{3}{4} = ?$$

Denominator	Prime Factors	Needs to become LCD
12	2 * 2 * 3	2
8	2 * 2 * 2	3
4	2 * 2	2 * 3

$$\begin{array}{r|l} 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$LCD = 2 * 2 * 2 * 3 = 24$$

$$\frac{2}{12} * 1 + \frac{1}{8} * 1 + \frac{3}{4} * 1 = \frac{2}{12} * \frac{2}{2} + \frac{1}{8} * \frac{3}{3} + \frac{3}{4} * \frac{6}{6}$$

$$= \frac{2 * 2}{12 * 2} + \frac{1 * 3}{8 * 3} + \frac{3 * 6}{4 * 6} = \frac{4}{24} + \frac{3}{24} + \frac{18}{24} =$$

$$\frac{4 + 3 + 18}{24} = \frac{25}{24} = \frac{24 + 1}{24} =$$

$$\frac{24}{24} + \frac{1}{24} = 1 + \frac{1}{24} = 1\frac{1}{24}$$

Example 3: $\frac{5}{8} - \frac{5}{24} = ?$

Denominator	Prime Factors	Needs to Become LCD
8	2 * 2 * 2	3
24	2 * 2 * 2 * 3	

$$\begin{array}{r|l} 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 24 \\ 2 & 12 \\ 2 & 6 \\ 3 & 3 \\ & 1 \end{array}$$

LCD = 2 * 2 * 2 * 3 = 24

$$\frac{5}{8} * 1 - \frac{5}{24} * 1 =$$

$$\frac{5}{8} * \frac{3}{3} - \frac{5}{24} = \frac{5 * 3}{8 * 3} - \frac{5}{24} =$$

$$\frac{15}{24} - \frac{5}{24} = \frac{15 - 5}{24} = \frac{10}{24} =$$

$$\frac{\cancel{2} * 5}{\cancel{2} * 12} = \frac{5}{12}$$

subtract Mixed Num.

Example 5:

$$\begin{array}{r} 83\ \frac{3}{4} \\ -\ 21\ \frac{2}{5} \\ \hline \end{array}$$

LCD	Prime factors	Need
4 =	2 * 2	5
5 =	5	2 * 2
LCD = 5 * 2 * 2		

$$\begin{array}{r} 83 + \frac{3}{4} * \frac{5}{5} \\ -\ 21 + \frac{2}{5} * \frac{2*2}{2*2} \\ \hline \end{array} \Rightarrow \begin{array}{r} 83 + \frac{3*5}{4*5} \\ -\ 21 + \frac{2*2*2}{5*2*2} \\ \hline \end{array} \Rightarrow \begin{array}{r} 83 + \frac{15}{20} \\ -\ 21 + \frac{8}{20} \\ \hline \end{array}$$

order of operations says do * before − or +

$$\begin{array}{r} 83\ \frac{15}{20} \\ -\ 21\ \frac{8}{20} \\ \hline 62\ \frac{15-8}{20} \end{array} = 62\ \frac{7}{20}$$

Answer $62\ \frac{7}{20}$

Add Mixed Numbers

Example 4:

$$\begin{array}{rrr} & 7 & \frac{1}{2} \\ & 2 & \frac{1}{4} \\ + & 10 & \frac{2}{3} \\ \hline \end{array}$$

LCD		Prime factors	Need
2	=	2	2 * 3
4	=	2 * 2	3
3	=	3	2 * 2

LCD = 3 * 2 * 2 = 12

$$\begin{array}{rrr} & 7 + \frac{1}{2} * \frac{2*3}{2*3} \\ & 2 + \frac{1}{4} * \frac{3}{3} \\ + & 10 + \frac{2}{3} * \frac{2*2}{2*2} \\ \hline \end{array} \Rightarrow \begin{array}{rrr} & 7 + \frac{1}{2} * \frac{6}{6} \\ & 2 + \frac{1}{4} * \frac{3}{3} \\ + & 10 + \frac{2}{3} * \frac{4}{4} \\ \hline \end{array} \Rightarrow \begin{array}{rrr} & 7 + \frac{6}{12} \\ & 2 + \frac{3}{12} \\ + & 10 + \frac{8}{12} \\ \hline \end{array}$$

one times any number is that number $\underbrace{2 * 1 = 2 * \frac{6}{6} = \frac{12}{6}}_{\text{example}}$

order of operations says do * before +

$$\begin{array}{rrr} & 7 & \frac{6}{12} \\ & 2 & \frac{3}{12} \\ + & 10 & \frac{8}{12} \\ \hline & 19 & \frac{17}{12} \end{array} = 19 + \frac{12}{12} + \frac{5}{12} = 19 + 1 + \frac{5}{12} = 20\frac{5}{12}$$

Answer $20\frac{5}{12}$

More

examples

on

Next

3

pages →

$$\frac{3}{8} * \frac{3}{5} = \frac{3*3}{8*5} = \frac{9}{40}$$

Multiply Fractions

Answer $\frac{9}{40}$

Divide Fractions

$$15\frac{1}{4} \div 5\frac{1}{8} = \frac{15*4+1}{4} \div \frac{8*5+1}{8} = \frac{61}{4} \div \frac{41}{8}$$

$$\frac{61}{4} \div \frac{41}{8} = \frac{61}{4} * \frac{8}{41} = \frac{61}{\cancel{4}_{1}} * \frac{\cancel{8}^{2}}{41} = \frac{61}{1} * \frac{2}{41} =$$

Invert and multiply

$$= \frac{61*2}{1*41} = \frac{122}{41} = 2\frac{40}{41}$$

$$\begin{array}{r} 2\frac{40}{41} \\ 41\overline{)122} \\ -82 \\ \hline 40 \end{array}$$

check: $\frac{82+40}{41} = \frac{122}{41}$ ✓

Answer $\frac{122}{41} = 2\frac{40}{41}$

change $\frac{43}{32}$ to a mixed number

$$\begin{array}{r} 1\ \frac{11}{32} \\ 32\overline{)43} \\ -\ 32 \\ \hline 11 \end{array}$$

Answer $1\frac{11}{32}$

write $\frac{30}{42}$ in lowest terms

$$\frac{3*10}{2*21} = \frac{\cancel{3}*\cancel{2}*5}{\cancel{2}*\cancel{3}*7} = \frac{5}{7}$$

Answer $\frac{5}{7}$

List all prime factors in numerator & denominator & cancel factors that appear in <u>both</u> numerator and denominator

Dividing

$$\begin{array}{r|rrrrr} & & & 3 & 1 & 5 \\ \hline 35 & 1 & 1 & 0 & 3 & 2 \\ & - & 1 & 0 & 5 & \\ \hline & & & 5 & \cancel{3}^{2} & \cancel{2}^{12} \\ & & - & 5 & 2 & 5 \\ \hline & & & & & 7 \end{array}$$

$\frac{7}{35}$ ← Remainder / Denominator

$$\begin{array}{r} 1 \\ 35 \\ *\ 3 \\ \hline 105 \end{array} \qquad \begin{array}{r} 2 \\ 35 \\ *\ 15 \\ \hline 175 \\ 350 \\ \hline 525 \end{array}$$

Must Reduce to lowest terms

Prime factors

$$= 315 + \frac{7}{35} = 315 + \frac{\cancel{7}}{\cancel{7} * 5}$$

$$= 315 + \frac{1}{5} = 315\frac{1}{5}$$

$$\boxed{\text{Answer} = 315\frac{1}{5} = 315.2}$$

$$5 \overline{)1.0} \quad .2$$

Also

$= 315 + \frac{1}{5}$

$315 + 1 \div 5$

$= 315 + .2$

$= 315.2$

---

change $6\frac{3}{8}$ to an improper fraction

$$= 6\frac{3}{8} = 6 + \frac{3}{8} = 6 * 1 + \frac{3}{8} = 6 * \frac{8}{8} + \frac{3}{8}$$

$$= \frac{6}{1} * \frac{8}{8} + \frac{3}{8} = \frac{48}{8} + \frac{3}{8} = \frac{48+3}{8} = \frac{51}{8}$$

$$\boxed{\text{Answer } \frac{51}{8}}$$

Any number times one is that number