## The TI-30XIIS Calculator and Fractions, Mixed Numbers and Decimals

These are the buttons we will be using to calculate fractions.



Let's start with the basic arithmetic operations:

> ADDITION:  $\frac{3}{4} + \frac{1}{5}$  Start with  $3 \boxed{A \frac{b}{c}} 4$ 



**DIVISION**: 
$$\frac{4}{7} \div \frac{6}{13} = 4 \quad A = \frac{b}{c} \quad 7 \Rightarrow 6 \quad A = \frac{b}{c} \quad 13 = \frac$$

Your screen should look like: 4 | 7 ⋮ 6 | 13 1 | 5 / 21

## Mixed numbers

These are the buttons we will be using to calculate mixed numbers and improper factions.



The answer from the division problem above was a mixed number 1 [_] 5 / 21. To convert from a mixed		
number to a improper fraction use the 2nd $A = \frac{b}{c}$ button to access the $A = \frac{b}{c} \Leftrightarrow \frac{d}{c}$ function.		
> Having $I \mid 5 / 21$ on the screen, $2^{nd} A \frac{b}{c} =$		
Your screen should look like:	26 / 21	
To convert back to a mixed number just press $2^{nd}$	$A\frac{b}{c}$ again.	
To input a mixed number, you need to use $A\frac{b}{c}$ key twice.		
> $3\frac{3}{4}$ is input by pressing $3\frac{A\frac{b}{c}}{c}$ $3\frac{A\frac{b}{c}}{c}$ $4 =$		
To work with mixed numbers and proper fractions, you just buttons.	st need to input each using the appropriate	
Let's work $2\frac{1}{4} \div \frac{2}{5}$		
> Input $2 \boxed{A \frac{b}{c}} 1 \boxed{A \frac{b}{c}} 4 \div 2 \boxed{A \frac{b}{c}} 5 =$		
<b>Your screen should look like:</b> 2 1 4 / 2	_ 5 <b>5 5 5 5 5 5 5 5 5 </b>	

 $2nd \left| \frac{A}{c} \right|$  yields 45 / 8. These buttons allow you to go back and forth between mixed numbers and improper fractions.

## **Decimal/Fraction Conversions**

These are the buttons we will be using to work with decimal conversions and percent.



There are times the decimal rather than the fractional value is needed. To convert a fraction to a decimal or back the 2nd PRB buttons must be pressed.

> To change  $5\frac{5}{8}$  to a decimal, input the mixed number as before  $5\overline{A\frac{b}{c}}$   $5\overline{A\frac{b}{c}}$  8: Now 2nd PRB press and the answer will change to a decimal.

Your screen should look like:	Ans $F \Leftrightarrow D$	5.625
If you press $A\frac{b}{c}$ again the answer rever	rts to the mixed number.	
Suppose the fraction does not represent a terminating decimal?		
If the problem is looking for an exact answer, you are better leaving your work in fractional form.		

If the problem is asking for an approximate answer,

you may convert to a non-termination decimal as a LAST step.

Fractions which have non-terminating decimal representation are given with the line above the repeating numbers.  $\frac{2}{3}$  becomes  $0.\overline{6}$   $\frac{5}{7}$  becomes  $0.\overline{714285}$   $\frac{17}{12}$  becomes  $1.41\overline{6}$ 

- Pressing the 2nd PRB again changes decimal to one with 10 decimal places rounding the answer in the last place.
- 0. 6 becomes 0.66666666667 0. 714285 becomes 0.7142857143 1.416 becomes 1.4166666667
  - > Pressing the 2nd PRB again changes decimal back to its fractional form.

To work a problem involving percent you will need to access the % function by first using 2nd and then [].

> To take 25% of 468: Press 25  $2nd \sqrt{X} 468 =$ 

Your screen should look like:	25%×468	117
	20/000100	

> To take  $12\frac{1}{3}$ % of 325: press  $12\overline{A\frac{b}{c}}$   $1\overline{A\frac{b}{c}}$  32nd ( $\times$  325 =

Vour screen should look like	12   1   3% 325	<u>481</u>
i our sereen snoura rook nike.		12

This answer can be changed to the mix number $40\frac{1}{12}$ or the decimal equivalent $40.08\overline{3}$ by using	
2nd $A\frac{b}{c}$ or 2nd PRB.	

Changing from percent to fraction or decimal is possible by just inputting the percent and pressing =.

Find 48% as a fraction and a decimal: 48 2nd [] =

Your screen should look like: 48%	$\frac{12}{25}$	Pressing 2nd PRB gives 0.48	
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> Find  $53\frac{1}{3}\%$  as a fraction and a decimal:  $53\overline{A\frac{b}{c}} = 1\overline{A\frac{b}{c}} = 32$  nd 32 nd  $\overline{A} = 1$ 

Your screen should look like: $53\frac{1}{3}\%$	$\frac{8}{15}$	Pressing 2nd PRB gives 0. $5\overline{3}$
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