



7TH GRADE TI-84 ACTIVITY 22: MAGIC FRACTIONS

ACTIVITY OVERVIEW:

In this activity we will

- Discover the magic qualities of adding unit fractions

First of all, unit fractions are fractions whose numerator is 1. $1/2$, $1/3$, $1/6$, $1/5$, $1/9$ are all unit fractions.

Try this problem on your calculator. Add $1/2$ and $1/3$. To enter a fraction, press $(1)(\div)(2)(\text{)})+(1)(\div)(3)(\text{)})$. Your screen should look like the one at the right before.

Press MATH select $>\text{Frac}$ by pressing ENTER and lastly ENTER to get the result, shown on the right

Do all of these problems and record the answers on the right.

$1/8 + 1/3 = \underline{\hspace{2cm}}$
 $1/2 + 1/7 = \underline{\hspace{2cm}}$
 $1/4 + 1/9 = \underline{\hspace{2cm}}$
 $1/3 + 1/7 = \underline{\hspace{2cm}}$
 $1/10 + 1/11 = \underline{\hspace{2cm}}$

Look at the numerator in the answer and the denominators in the problem. Look at the denominator in the answer and the denominator in the problem. Do you see a pattern?

In the problem $\frac{1}{8} + \frac{1}{3}$, the answer is $\frac{11}{24}$. Notice that the answer in the numerator is 11 and the two denominators 8 and 3, add to 11. The denominator in the answer is 24 and the denominators in the problem, 8 and 3, multiply to 24.

Now you have a quick method to find answers for fraction problems with nit fractions.

Extension

The calculator does not use this method for all problems. Try $\frac{1}{2} + \frac{1}{6}$. What is the answer? Why is the denominator not 12? Why is the numerator 4 and not 8? What is different about this problem?

The diagram shows the addition of two fractions, $\frac{1}{2} + \frac{1}{6}$. The numerators 1 and 1 are added together to get 2, and the denominators 2 and 6 are multiplied together to get 12. The result is $\frac{2}{12}$, which is simplified to $\frac{1}{6}$. The diagram uses arrows to show the flow of the calculation: one arrow points from the sum of the numerators (2) to the numerator of the result (1), and another arrow points from the product of the denominators (12) to the denominator of the result (6).

Can you come up with a method to subtract unit fractions?