

Four Digit Fun with Fractions

You will be given four digits.

You must create problems which meet the following specifications

- A. Use all four digits to create a fraction as close to zero as possible.
- B. Use all four digits to create a fraction that is about one half.
- C. Use all four digits to create two fractions that sum as close to 1 as possible.

Example: Use the four digits: 3, 5, 7, 9

Part A:

In forming the fractions for part 1 you would only want to only consider

$\frac{3}{579}, \frac{3}{597}, \frac{3}{759}, \frac{3}{795}, \frac{3}{957},$ and $\frac{3}{975}$. Think about why these are the only ones you want to consider.

Can you eliminate half the answer right away. Why shouldn't you consider $\frac{3}{579}, \frac{3}{759},$ and $\frac{3}{957}$?

Of the three answer left $\left(\frac{3}{597}, \frac{3}{795}, \text{and } \frac{3}{975}\right)$, why is $\frac{3}{975}$ is closest to zero.

Part B:

In forming the fractions it makes sense to only consider $\frac{35}{79}, \frac{35}{97}, \frac{53}{79}, \frac{53}{97}, \frac{37}{59}, \frac{37}{95}, \frac{39}{75}$ and $\frac{39}{57}$

Explain why only these should be considered.

How would you determine which of these is about $\frac{1}{2}$?

Can you think why $\frac{39}{75}$ is closest to $\frac{1}{2}$?

Part C:

In forming the fractions, it makes sense to only consider $\frac{3}{7} + \frac{5}{9}, \frac{3}{9} + \frac{5}{7},$ and $\frac{7}{9} + \frac{3}{5}$.

Can you think why these are the only ones you want to consider?

Can you think why $\frac{3}{7} + \frac{5}{9}$ is closest to 1?

If fraction bars are available you might want to use fraction bars to add some of these fractions together to see visually why $\frac{3}{7} + \frac{5}{9}$ is closest to 1.