Let's Be Rational Investigation 1

Knowing how to combine and separate quantities is helpful in understanding the world around you. The mathematical terms for combining and separating quantities are adding and subtracting. The results of addition is called a sum, the result of subtraction is called a difference.

Sometimes when you need to find a sum or difference, you do not need an exact answer. In these situations, making a reasonable estimate is good enough. It is always a good idea to estimate, even when you want an exact answer. You can check your exact answer by comparing it to an estimate.

- What is a good estimate for \( 1/8 + 4/8 \)?
- What is a good estimate for \( 7/8 + 1/8 \)?
- How do these estimates help you check the exact sum and difference?

Create a Number line with benchmarks

Getting Close is a game that will sharpen your estimating skills by using benchmarks. A benchmark is a reference number that can be used to estimate the size of other numbers. Here are some benchmarks.

- \( 0 \)
- \( \frac{1}{4} \)
- \( \frac{1}{2} \)
- \( \frac{3}{4} \)
- \( 1 \)

- Which benchmark is \( \frac{1}{4} \) closest to?
- Which benchmark is \( \frac{1}{2} \) closest to?
- Which benchmark is \( \frac{3}{4} \) closest to?
- Which benchmark is \( 1 \) closest to?

Can you estimate which benchmark is closer to \( \frac{1}{4} \)?

Estimate the sums of fractions first. Then estimate the sums of decimals.

### Directions

1. All players hold a \( 0, 1, 2, \) and \( 9 \) number square in their hand.
2. One player picks two game cards from the pile in the center of the table.
3. Each player mentally estimates the sum of the numbers on the two game cards.
4. Each player then selects a number square \( 0, 1, 2, \) or \( 9 \) over their estimate and places it face down on the table.
5. After each player has placed a number square, the players turn their number squares over at the same time.
6. Each player decides in the actual sum is less or greater than the estimate. The player whose number square is closer to the actual sum gets the two game cards.

**Note:** If there is a tie, all players may take the tied game card and then roll the die to determine who gets it.

### Problem 1.1 - page 10

- Suppose the player winning a game card ends up with all three game cards. How do you know? Estimate the sum.
- Which two cards have the least sum? How do you know? Estimate the sum.
Homework:
ACE page 18: 1-21 ODD numbers only!