

# 3 Grade 3 Math

## Category 1 – Numerical Representations & Relationships

### PLACE VALUE

**base-10 place value system:** place values increase by a factor of 10 from right to left; the value of a digit in a place is equal to that digit multiplied by its place value

larger place value ← → smaller place value

100,000	10,000	1,000	100	10	1
hundred thousands	ten thousands	thousands	hundreds	tens	ones
4	6	7	5	0	9

**Examples:** Use the **place value chart** for 467,509 to help you.

- Q-1:** What is the place value of the 7 in 467,509?  
**A-1:** 7 is in the thousands place. The place value is 1,000.
- Q-2:** What is the value of the 7 in 467,509?  
**A-2:**  $7 \times 1,000 = 7,000 \rightarrow$  The 7 has a value of 7,000.
- Q-3:** What digit in 467,509 is in the thousands place? **A-3:** 7
- Q-4:** In 467,509, how does the place value of the 7 compare to the place value of the 5?  
**A-4:** 7 is in the thousands place; 5 is in the hundreds place, so the 7's place value is 10 times greater than the 5's.

### COMPOSING AND DECOMPOSING NUMBERS

**standard notation:** normal way to express a number with a digit (0–9) in each place; a comma separates the thousands from the hundreds **Example:** 467,509 is in standard notation. In words, read left to right and say *four hundred sixty-seven thousand five hundred nine*.

**Examples:** 467,509 is *four hundred sixty-seven thousand five hundred nine*. 9,023 is *nine thousand two hundred three*.

**expanded notation:** expression that lists each place value

**Example:**  $400,000 + 60,000 + 7,000 + 500 + 090$

There are many ways to compose a number.

**Examples:**

**Q-1:** What number does the model represent?  
**A-1:**  $300,000 + 40,000 + 2,000 + 100 + 20 + 3 = 342,300$

**Q-2:** Create a model for 123 with only one unit.  
**A-2:**

**Q-3a:** What number does the model represent if  $\square = 1$ ?  
**A-3a:**  $300,000 + 40,000 + 2,000 + 100 + 20 + 3 = 342,300$

**Q-3b:** If  $\square = 1,000$ ?  
**A-3b:** 376,000

**Q-3c:** If  $\square = 100$ ?  
**A-3c:** 376,000

**Q-3d:** If  $\square = 10$ ?  
**A-3d:** 376,000

**Q-3e:** If  $\square = 1$ ?  
**A-3e:** 376,000

**Q-3f:** If  $\square = 1$ ?  
**A-3f:** 376,000

**Q-3g:** If  $\square = 1$ ?  
**A-3g:** 376,000

**Q-3h:** If  $\square = 1$ ?  
**A-3h:** 376,000

**Q-3i:** If  $\square = 1$ ?  
**A-3i:** 376,000

**Q-3j:** If  $\square = 1$ ?  
**A-3j:** 376,000

**Q-3k:** If  $\square = 1$ ?  
**A-3k:** 376,000

**Q-3l:** If  $\square = 1$ ?  
**A-3l:** 376,000

**Q-3m:** If  $\square = 1$ ?  
**A-3m:** 376,000

**Q-3n:** If  $\square = 1$ ?  
**A-3n:** 376,000

**Q-3o:** If  $\square = 1$ ?  
**A-3o:** 376,000

**Q-3p:** If  $\square = 1$ ?  
**A-3p:** 376,000

**Q-3q:** If  $\square = 1$ ?  
**A-3q:** 376,000

**Q-3r:** If  $\square = 1$ ?  
**A-3r:** 376,000

**Q-3s:** If  $\square = 1$ ?  
**A-3s:** 376,000

**Q-3t:** If  $\square = 1$ ?  
**A-3t:** 376,000

**Q-3u:** If  $\square = 1$ ?  
**A-3u:** 376,000

**Q-3v:** If  $\square = 1$ ?  
**A-3v:** 376,000

## COMPARING AND ORDERING NUMBERS

- Line up the same place values in the same columns.
- Starting from the left, compare the digits in each place value.
- If the digits in a place value are the same, move to the next column (to the right) and compare those digits. Do this until the digits in a place value are different.
- Compare the different digits in that place value. The larger digit is greater.

**Example:** Compare 93,786 to 93,865.

93,786 is less than 93,865. Since 7 is less than 8,  $93,786 < 93,865$ .

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You can compare numbers from least to greatest (such as 99, 164, 290) or from greatest to least (such as 290, 164, 99).

## UNDERSTANDING REPRESENTING FRACTIONS

A fraction describes part of a whole. The numerator is the top number and the denominator is the bottom number.

**Fraction**   **Objects**   **Model**   **Number Line**

**Example:** If one whole is divided into 3 equal parts, 1 part =  $\frac{1}{3}$

of the whole. If a whole is divided into 6 equal parts, 1 part =  $\frac{1}{6}$ . A fraction can be shown as sum of its parts.

**Sum of Parts**   **Model**   **Number Line**

**Examples:**

**Q-1:** What fraction does point A on the number line represent?  
**A-1:** 1 unit is divided into 6 equal parts,  $A = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{6}{6} = 1$

**Q-2:** What fraction of the candies does Joe have? **A-2:**  $\frac{1}{2}$

**Q-3:** A cake is divided into 4 equal pieces. Which figure could show how much is left after 1 piece is eaten? **A-3:** A and C

**A.** **B.** **C.**

**Q-3a:** Which figure could show how much is left after 1 piece is eaten? **A-3a:** A and C

**Q-3b:** Which figure could show how much is left after 1 piece is eaten? **A-3b:** A and C

**Q-3c:** Which figure could show how much is left after 1 piece is eaten? **A-3c:** A and C

**Q-3d:** Which figure could show how much is left after 1 piece is eaten? **A-3d:** A and C

**Q-3e:** Which figure could show how much is left after 1 piece is eaten? **A-3e:** A and C

**Q-3f:** Which figure could show how much is left after 1 piece is eaten? **A-3f:** A and C

**Q-3g:** Which figure could show how much is left after 1 piece is eaten? **A-3g:** A and C

**Q-3h:** Which figure could show how much is left after 1 piece is eaten? **A-3h:** A and C

**Q-3i:** Which figure could show how much is left after 1 piece is eaten? **A-3i:** A and C

**Q-3j:** Which figure could show how much is left after 1 piece is eaten? **A-3j:** A and C

**Q-3k:** Which figure could show how much is left after 1 piece is eaten? **A-3k:** A and C

**Q-3l:** Which figure could show how much is left after 1 piece is eaten? **A-3l:** A and C

**Q-3m:** Which figure could show how much is left after 1 piece is eaten? **A-3m:** A and C

**Q-3n:** Which figure could show how much is left after 1 piece is eaten? **A-3n:** A and C

**Q-3o:** Which figure could show how much is left after 1 piece is eaten? **A-3o:** A and C

**Q-3p:** Which figure could show how much is left after 1 piece is eaten? **A-3p:** A and C

**Q-3q:** Which figure could show how much is left after 1 piece is eaten? **A-3q:** A and C

**Q-3r:** Which figure could show how much is left after 1 piece is eaten? **A-3r:** A and C

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