

Place-Value Connections

Represent, compare, and round whole numbers and decimals.

GRADE 4 • TEKS 4.2

4.2 "Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value..."

NAME _____

DATE _____

READ EACH PLACE

Compare whole-number parts first, from the greatest place. If they match, compare tenths, then hundredths. Each place is 10 times the place to its right and one tenth of the place to its left. Materials per pair: two \$1 bills or labeled paper dollar cards, 20 dimes and 60 pennies (real or play money). Reuse them after each task. One dollar is one whole; a dime is 0.1 and a penny is 0.01. Each 10 by 10 grid is one whole: one row is 0.1 and one cell is 0.01.

WORKED EXAMPLE

Explain the values of the three 3s in 3.33 using the table.

ONE DIGIT, THREE VALUES

Place	Value
Ones	3
Tenths	0.3
Hundredths	0.03

- Expanded notation: $3.33 = 3 + (3 \times 0.1) + (3 \times 0.01)$.
- 3 is 10 times 0.3; 0.03 is one tenth of 0.3.

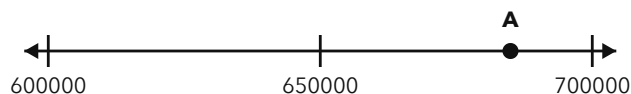
Answer: The digit is the same, but its value depends on its place.

PRACTICE 4 problems

- Write 906,040,008 in expanded notation. Name the value of the 9 and explain how it compares with a 9 one place to its right. Then write the numeral for $700,000,000 + 2,000,000 + 50,000 + 6$.

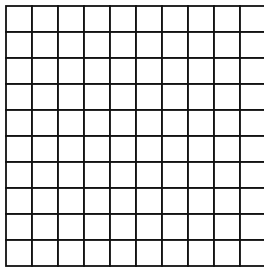
- 2** Order 999,990,000; 1,000,000,000; and 999,900,000 from least to greatest using $<$. Explain the first place that distinguishes the two smaller numbers.

- 3** Round 684,950 to the nearest 10; 100; 1,000; 10,000; and 100,000. Use the line to explain your hundred-thousands estimate.



- 4** Build \$0.47 with dimes and pennies. Shade the grid to match. Write its decimal, a fraction in hundredths, and expanded notation showing the value of each digit.

One whole = 1

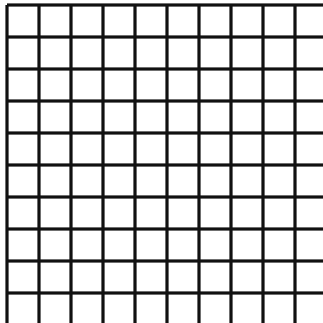


APPLY IT Show your work

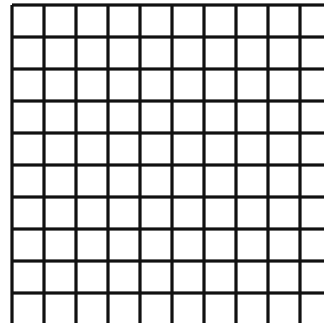
Compare \$1.06 and \$0.96. Build both with the money. The grids show only the decimal parts: shade A for 0.06 and B for 0.96, and draw a \$1 card beside A. Write the comparison and explain why the whole-number parts decide it.

1

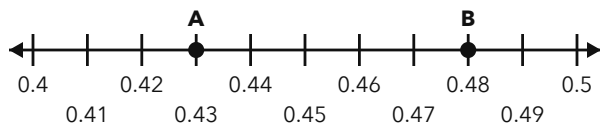
Grid A



Grid B

**2**

Read points A and B on this line. Write each as a decimal and a fraction in hundredths. Which point is greater? Use its position to explain.



CHALLENGE One step up

Build 0.6, 0.06, and 1.06 with the money one at a time. Order them using $<$. Explain why $0.6 = 6/10 = 60/100$ but $0.06 = 6/100$. Name the equal-money trade that proves the first equality.

Require the whole dollar as well as each fractional model. Accept expanded notation with explicit products or equivalent sums. For rounding, an exact multiple stays unchanged; halfway rounds to the greater multiple. On Task 3, A represents 684,950 approximately on the large line. This review samples every named skill in TEKS 4.2; use the individual substandard worksheets for additional practice.

PRACTICE 1

900,000,000 + 6,000,000 + 40,000 + 8. The 9 is 900,000,000, ten times 90,000,000. The numeral is 702,050,006.

PRACTICE 2

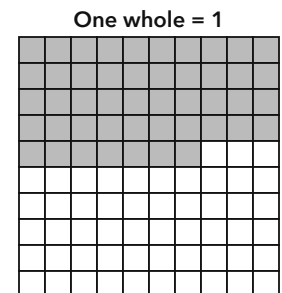
999,900,000 < 999,990,000 < 1,000,000,000. The ten-thousands place distinguishes the smaller two: 0 < 9.

PRACTICE 3

Nearest 10: 684,950; 100: 685,000; 1,000: 685,000; 10,000: 680,000; 100,000: 700,000. It is beyond the 650,000 midpoint, so closer to 700,000.

PRACTICE 4

4 dimes + 7 pennies; $0.47 = 47/100 = 4 \times 0.1 + 7 \times 0.01$.

**APPLY IT 1**

1 dollar and 6 pennies is greater than 9 dimes and 6 pennies: $1.06 > 0.96$. A has 6 shaded cells plus one \$1 card; B has 96 shaded cells and no whole dollar.

Compare the complete models, including A's whole dollar. The fractional grid alone is not the whole amount.

APPLY IT 2

$A = 0.43 = 43/100$; $B = 0.48 = 48/100$. B is greater because it is farther right.

Each interval is 0.01, or one hundredth. Count intervals from 0.40.

CHALLENGE

$0.06 < 0.6 < 1.06$. Six dimes can be traded for 60 pennies, so 6 tenths = 60 hundredths. Six pennies is only 6 hundredths.