4.NF Using Place Value

a. Fill in the following blanks to:

- Count by tenths:

  0.17, **0.27**, _____, _____, _____, _____, _____, _____

- Count by tenths:

  _____, _____, **0.56**, **0.66**, _____, _____, _____, _____

- Count by tenths:

  _____, _____, _____, **103.12**, _____, **103.32**, _____, _____

- Count by hundredths

  _____, _____, _____, **103.12**, _____, _____, _____, **103.16**

- Count by tens:

  _____, _____, _____, **103.12**, **113.12**, _____, _____, _____

b. Fill in the blank with $<, =$, or $>$ to complete the equation.

- 4 tenths + 3 hundredths _____ 2 tenths + 12 hundredths

- 3 hundredths + 4 tenths _____ 2 tenths + 22 hundredths

- 5 hundredths + 1 tenths _____ 11 tenths + 4 hundredths

- 5 hundredths + 1 tenth _____ 15 hundredths + 0 tenths

- 5 hundredths + 1 tenth _____ 0 tenths + 15 hundredths

c. Fill in the blank with $<, =$, or $>$ to complete the equation.

- 0.01 _____ 0.11

- 0.2 _____ 0.20

- 0.6 _____ 0.41

- 0.07 _____ 0.70

- 0.57 _____ 0.75

Commentary

Each part of this task highlights a slightly different aspect of place value as it relates to decimal notation. More than simply being comfortable with decimal notation, the point is for students to be able to move fluidly between and among the different ways that a single value can be represented and to understand the relative size of the numbers in each place.

Part a requires students to use what they know about place value to count forward and backward from a given number by tens, tenths, and hundredths. It makes explicit the connections between place value, counting, and, with the help of some classroom discussion, makes a connection to addition and subtraction.

Part b illustrates the cluster heading, "Understand decimal notation for fractions, and compare decimal fractions." Students can justify with an explanation or a visual model, such as a number line diagram. Whatever method the student chooses, it must be clear that comparisons are only valid when based on the same whole.

If needed students may be asked to provide a model to justify their response in part c. Acceptable models could include a number line, an area model, money, etc.

Solution: Solution to Part a

- Count by tenths:

  0.17, 0.27, **0.37**, **0.47**, **0.57**, **0.67**, **0.77**, **0.87**,

- Count by tenths:

  0.36, **0.46**, 0.56, 0.66, **0.76**, **0.86**, **0.96** , **1.06**

- Count by tenths:

  102.82, **102.92**, **103.02**, 103.12, **103.22**, 103.32, **103.42**, **103.52**

- Count by hundredths:

  103.09, **103.10**, **103.11**, 103.12, **103.13**, **103.14**, **103.15**, 103.16

- Count by tens:

  73.12, **83.12**, **93.12**, 103.12, 113.12, **123.12**, **133.12**, **143.12**

Solution: Solution to Part b

- 4 tenths $+ 3$ hundredths > 2 tenths $+ 12$ hundredths

- 3 hundredths $+ 4$ tenths > 2 tenths $+ 22$ hundredths

- 5 hundredths $+ 1$ tenths < 11 tenths $+ 4$ hundredths

- 5 hundredths $+ 1$ tenths $= 15$ hundredths $+ 0$ tenths

- 5 hundredths $+ 1$ tenths $= 0$ tenths $+ 15$ hundredths

Solution: Solution to Part c

- $0.01 < 0.11$

- $0.2 = 0.20$

- $0.6 > 0.41$

- $0.07 < 0.70$

- $0.57 < 0.75$

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