

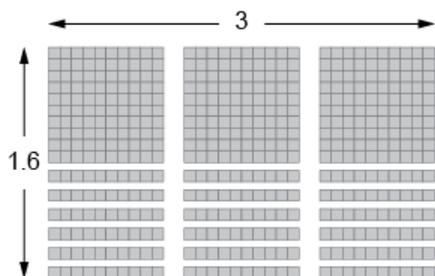
Activity 19 Assessment

Operations with Fractions, Decimals, and Percents Consolidation

Multiplying and Dividing Decimals by 2-Digit Numbers

Models multiplication and division situations concretely and pictorially.

$$1.6 \times 3 = ?$$



"I used Base Ten Blocks to make an array with length 3 and width 1.6. I then counted the blocks to get 4.8.

I could also use repeated addition:
 $1.6 + 1.6 + 1.6 = 4.8$ "

Uses models and other strategies to solve multiplication and division situations.

$$4.15 \times 25 = ?$$

$$\begin{aligned} 4.15 \times 25 &= (4.0 + 0.10 + 0.05) \times (20 + 5) \\ &= (4.0 \times 20) + (0.10 \times 20) + (0.05 \times 20) \\ &\quad + (4.0 \times 5) + (0.10 \times 5) + (0.05 \times 5) \\ &= 80.0 + 2.0 + 1.0 + 20 + 0.5 + 0.25 \\ &= 103.75 \end{aligned}$$

Uses the standard algorithm to multiply.

$$4.15 \times 25 = ?$$

"First, I multiplied as if there was no decimal. Next, I counted the number of digits after the decimal point in each factor. Then I placed the same number of digits after the decimal point in the product."

$$\begin{array}{r} \overset{1}{2} \\ 4.15 \\ \times 25 \\ \hline 2075 \\ + 8300 \\ \hline 103.75 \end{array} \quad \begin{array}{l} \text{Multiply : } 415 \times 5 \\ \text{Multiply : } 415 \times 20 \end{array}$$

Observations/Documentation

Activity 19 Assessment

Operations with Fractions, Decimals, and Percents Consolidation

Multiplying and Dividing Decimals by 2-Digit Numbers (cont'd)

Decomposes numbers to use partial quotients to divide.

$$4.44 \div 12 = ?$$

$$\begin{array}{r} 12 \overline{) 444} \\ \underline{-360} \quad 30 \text{ groups of } 12 \\ 84 \\ \underline{-84} \quad 7 \text{ groups } 12 \\ 0 \end{array}$$

"I used partial quotients to divide as whole numbers, then estimated to place the decimal point. 4.44 is about 4 and 12 is about 10. So, $4 \div 10 = 0.40$. So, I placed the decimal point so 37 is close to 0.40: 0.37."

Estimates to determine if answer to multiplication or division problem is reasonable.

$$\begin{array}{r} 0.37 \\ 12 \overline{) 4.44} \\ \underline{-36} \\ 84 \\ \underline{-84} \\ 0 \end{array}$$

"\$4.44 is about \$4 and 12 is about 10. So, $\$4 \div 10 = \0.40 . So, the answer is reasonable."

Solves multiplication and division problems flexibly using a variety of strategies.

The area of a rectangular garden plot is 95.2 m². The length of the garden is 14 m. What is the width?

"I divided as I would whole numbers, then used estimation to place the decimal point."

$$\begin{array}{r} 6.8 \\ 14 \overline{) 95.2} \\ \underline{-84} \\ 112 \\ \underline{-112} \\ 0 \end{array}$$

95.2 is about 100, and 14 is about 10. $100 \div 10 = 10$. I placed the decimal point so that 68 is close to 10: 6.8. The width of the garden is 6.8 m."

Observations/Documentation

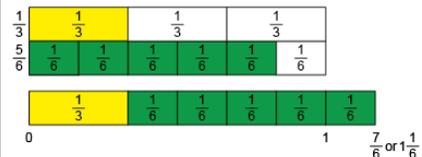
Activity 19 Assessment

Operations with Fractions, Decimals, and Percents Consolidation

Addition and Subtraction of Fractions with Unlike Denominators

Concretely solves problems.

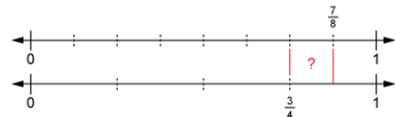
$$\frac{1}{3} + \frac{5}{6} = ?$$



"I used fraction strips. I can see that $\frac{1}{3} = \frac{2}{6}$ and that $\frac{1}{3} + \frac{5}{6} = \frac{7}{6}$, or $1\frac{1}{6}$."

Models pictorially to solve problems.

$$\frac{7}{8} - \frac{3}{4} = ?$$



"I used a double number line. I modelled $\frac{7}{8}$ on the top line and $\frac{3}{4}$ on the bottom line, then found the difference. From the double number lines, I see the difference is $\frac{1}{8}$."

Uses equivalent fractions to symbolically solve problems.

$$\frac{1}{6} + \frac{1}{3} + \frac{1}{2} = ?$$

"I wrote equivalent fractions with a common denominator of 6.

$$\frac{1}{3} = \frac{2}{6} \text{ and } \frac{1}{2} = \frac{3}{6}$$

$$\frac{1}{6} + \frac{1}{3} + \frac{1}{2} = \frac{1}{6} + \frac{2}{6} + \frac{3}{6}$$

$$= \frac{6}{6}, \text{ or } 1 \text{ whole.}"$$

Fluently and flexibly solves problems.

$$3\frac{1}{4} - 2\frac{7}{8} = ?$$

"I wrote $2\frac{7}{8}$ as an improper fraction, $\frac{23}{8}$. Then I subtracted $\frac{13}{4} - \frac{23}{8}$ using a common denominator of 8."

$$\begin{aligned} \frac{13}{4} - \frac{23}{8} &= \frac{26}{8} - \frac{23}{8} \\ &= \frac{3}{8} \end{aligned}$$

Observations/Documentation