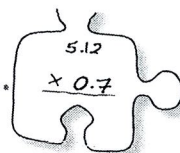


110

5.2.1 Does the answer make sense?

Making Sense of Decimal Multiplication



5-41

a

5-40 As you answer the questions below, think about multiple representations of portions to help you make sense of multiplying percents and decimals.

a) Calculate 60% of 30% using fractions. Then, calculate 60% of 30% using decimals.

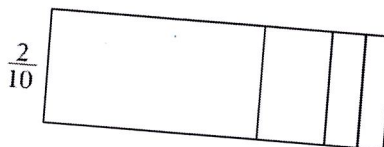
b) To find 40% of 20%, Chika used decimal multiplication. She thinks that $0.4 \times 0.2 = 0.8$. What percent is 0.8? Does this make sense for her answer? Calculate the correct answer.

c) What happens when you multiply one tenth by one tenth? Use fraction multiplication to find the answer, and then represent the problem and answer using decimals.

d) Multiply $\frac{1}{10} \cdot \frac{4}{100}$. Then represent this problem and answer using decimals.

b)

5-41 Ben and Connor needed to calculate 20% of 4.312. They started by drawing the generic rectangle at right.



a) Why did they write $\frac{2}{10}$?

b) Copy their generic rectangle on your own paper and work with your team to label the missing dimensions and areas with fractions.

c) Find the product and then express it as a decimal.

c)

5-42 Work with your team to make sense of another method for multiplying $0.2(4.312)$. The work below shows the decimal in the product has been moved in four places. Explain how this student might have known to move the decimal four places.

$$\begin{array}{r} 4.312 \\ \times 0.2 \\ \hline 0.8624 \end{array}$$

d)

5-43. Find the product of $3.9(0.6)$ using any method. Show all work.

5-41
5-42
5-43

on Pg. 113

the decimal in the product is like fraction.

2

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5-40

60% of 30%

a)

Fractions

$$\frac{60}{100} \times \frac{30}{100} = \frac{18}{100}$$

$$\frac{18}{100} = 0.18$$

Decimals

$$0.60 \times 0.30 = \begin{array}{r} 0.60 \\ \times 0.30 \\ \hline 180 \\ 1800 \\ \hline 18000 \end{array} \textcircled{2}$$

b) 0.8 or 0.80 is 80%. It doesn't make sense that 40% of 20% (less than half of 20%) would be 80%.

$$\begin{array}{r} 0.4 \\ \times 0.2 \\ \hline 0.8 \end{array} \textcircled{2}$$

0.08 or 8%

c) $\frac{1}{10} \cdot \frac{1}{10} = \frac{1}{100}$

$$\begin{array}{r} 0.1 \\ \times 0.1 \\ \hline 0.01 \end{array} \textcircled{2} = 0.01$$

d) $\frac{1}{10} \cdot \frac{4}{100} = \frac{4}{1000}$

$$\begin{array}{r} 0.04 \\ \times 0.1 \\ \hline 0.004 \end{array} \textcircled{3} = 0.004$$



The place value of the decimal answer matches the denominator of the fraction.

- 5-41
- 5-42
- 5-43

} on Pg. 113