

Chapter 2 Fractions and Decimals

Notetaking Organizer

1–8. Sample answers are given.

1.

$\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$ <p>$(b \neq 0 \text{ and } d \neq 0)$</p>	<p>Multiplying fractions</p> <p>Multiply the numerators and multiply the denominators. The denominators cannot be 0.</p> <p>Example:</p> $\frac{3}{4} \times \frac{5}{8} = \frac{3 \times 5}{4 \times 8} = \frac{15}{32}$
<p>How do you multiply two mixed numbers?</p>	

2.

$\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$ <p>$(b \neq 0 \text{ and } d \neq 0)$</p>	<p>Multiplying mixed numbers</p> <ol style="list-style-type: none">1. Write each mixed number as an improper fraction.2. Multiply as you would with fractions. <p>Example:</p> $\begin{aligned} 1\frac{2}{3} \times 2\frac{3}{4} &= \frac{5}{3} \times \frac{11}{4} \\ &= \frac{5 \times 11}{3 \times 4} \\ &= \frac{55}{12}, \text{ or } 4\frac{7}{12} \end{aligned}$
<p>Why can't b and d equal 0? How do you divide mixed numbers?</p>	

Chapter 2 (continued)

3.

$\frac{a}{b} + \frac{c}{d} = \frac{a}{b} \times \frac{d}{d}$ <p>($b, c,$ and $d \neq 0$)</p>	<p style="text-align: center;">Dividing mixed numbers</p> <ol style="list-style-type: none"> Write each mixed number as an improper fraction. Divide as you would with fractions. <p>Example:</p> $4\frac{3}{4} \div 2\frac{1}{2} = \frac{19}{4} \div \frac{5}{2}$ $= \frac{19}{4} \times \frac{2}{5}$ $= \frac{19 \times \cancel{2}^1}{\cancel{4}_2 \times 5}$ $= \frac{19}{10}, \text{ or } 1\frac{9}{10}$
<p>How do you divide decimals?</p>	

4.

<p>Be sure to line up the decimal points so that you add or subtract only the digits that have the same place value. You may have to insert zeros.</p> $\begin{array}{r} \text{addend} \\ + \text{addend} \\ \hline \text{sum} \end{array}$	<p style="text-align: center;">Adding and subtracting decimals</p> <ol style="list-style-type: none"> Line up the decimal points. Bring down the decimal point. Add or subtract as you would with whole numbers. <p>Example: $17.625 + 108.3$</p> $\begin{array}{r} 1 \\ 17.625 \\ + 108.300 \leftarrow \text{Insert zeros.} \\ \hline 125.925 \end{array}$
<p>How do you add or subtract a decimal and a fraction?</p>	

5.

<p>Remember to check that your product has the same number of decimal places as the decimal factor. You may have to insert zeros in your product. You do <u>not</u> have to line up the decimal points when multiplying.</p> $\begin{array}{r} \text{factor} \\ \times \text{factor} \\ \hline \text{product} \end{array}$	<p style="text-align: center;">Multiplying decimals by whole numbers</p> <ol style="list-style-type: none"> Multiply as you would with whole numbers. Count the number of decimal places in the decimal factor. The product has the same number of decimal places. <p>Example: 16.64×3</p> $\begin{array}{r} 11 \cancel{1} \\ 16.64 \\ \times 3 \\ \hline 49.92 \end{array} \left. \begin{array}{l} \swarrow \\ \searrow \end{array} \right\} \text{two decimal places}$
<p>How do you multiply two decimals? Why don't you line up the decimal points when multiplying?</p>	

6.

<p>Remember to check that your product has the same number of decimal places as the sum of the decimal places in the factors. You may have to insert zeros in your product. You do <u>not</u> have to line up the decimal points when multiplying.</p> $\begin{array}{r} \text{factor} \\ \times \text{factor} \\ \hline \text{product} \end{array}$	<p style="text-align: center;">Multiplying decimals by decimals</p> <ol style="list-style-type: none"> Multiply as you would with whole numbers. Add the number of decimal places in the factors. The sum is the number of decimal places in the product. <p>Example: 3.6×4.07</p> $\begin{array}{r} 4.07 \leftarrow 2 \text{ decimal places} \\ \times 3.6 \leftarrow 1 \text{ decimal place} \\ \hline 2442 \\ 1221 \\ \hline 14.652 \leftarrow 3 \text{ decimal places} \end{array}$
<p>Why don't you line up the decimal points when multiplying? How do you multiply a decimal by a fraction?</p>	

Chapter 2 (continued)

7.

$\frac{\text{dividend}}{\text{divisor}} = \text{quotient}$ $\begin{array}{r} \text{quotient} \\ \text{divisor} \overline{) \text{dividend}} \end{array}$ <p>Remember to place the decimal point in the quotient first.</p>	<p>Dividing decimals by whole numbers</p> <ol style="list-style-type: none"> Place the decimal point in the quotient above the decimal point in the dividend. Divide as you would with whole numbers. If needed, insert a zero in the dividend, and continue to divide. <p>Example: $11.7 \div 6$</p> $\begin{array}{r} 1.95 \\ 6 \overline{) 11.70} \\ \underline{-6} \\ 57 \\ \underline{-54} \\ 30 \\ \underline{-30} \\ 0 \end{array}$
<p>Why can you insert a zero after a decimal? How do you divide a decimal by another decimal?</p>	

8.

$\frac{\text{dividend}}{\text{divisor}} = \text{quotient}$ $\begin{array}{r} \text{quotient} \\ \text{divisor} \overline{) \text{dividend}} \end{array}$ <p>Multiplying the divisor and dividend by a power of 10 does not change the quotient.</p>	<p>Dividing decimals by decimals</p> <ol style="list-style-type: none"> Multiply the divisor and the dividend by a power of 10 to make the divisor a whole number. Place the decimal point in the quotient. Divide as you would with whole numbers. If needed, insert a zero in the dividend and continue to divide. <p>Example: $0.259 \div 0.14$</p> $\begin{array}{r} 1.85 \\ 0.14 \overline{) 0.259} \rightarrow 14 \overline{) 25.90} \\ \underline{-14} \\ 119 \\ \underline{-112} \\ 70 \\ \underline{-70} \\ 0 \end{array}$
<p>Why can you insert a zero after a decimal? How do you divide a fraction by a decimal?</p>	