NS4-45 Naming Fractions

The area is cut into 4 equal parts.
1 part out of 4 is shaded.
1/4 of the area is shaded.

The numerator (1) tells you one part is shaded.
The denominator (4) tells you how many equal parts are in a whole.

1. Write the fraction shown by the shaded part of the image.
   a) b) c) d) e) f)

2. Shade the fraction.
   a) 1/6 b) 1/5 c) 1/9 d) 1/10 e) 1/100 f) 1/20

3. Write the words that describe each square in the figure.
   one fourth  one fifth  one sixth  one seventh  one eighth  one ninth
   a) b) c)
4. Write the fraction shown by the shaded part of the figure.

   a) 
   b) 
   c) 
   d) 
   e) 
   f) 

5. Shade the fraction.

   a) \( \frac{1}{7} \) 
   b) \( \frac{3}{7} \) 
   c) \( \frac{6}{7} \) 
   d) \( \frac{1}{8} \) 
   e) \( \frac{5}{8} \) 
   f) \( \frac{7}{8} \) 

6. Find a fraction in the top row that is equal to a fraction in the bottom row. Fill in the blank with the letter from the fraction in the top row.

   A. 
   B. 
   C. 
   D. 

   a) 
   b) 
   c) 
   d) 

7. Shade the fraction twice. Put a √ under the figure with the larger amount of shading.

   a) \( \frac{1}{10} \) 
   b) \( \frac{4}{10} \) 
   c) \( \frac{7}{10} \)
NS4-48 Comparing and Ordering Fractions

1. a) Write the numerators of the shaded fractions.
   
   ![Fraction Diagrams]
   
   
   
   b) Look at the pictures and fractions in part a) from left to right. Write “increases,” “decreases,” or “stays the same.”
   
   i) Numerator ____________________________.
   
   ii) Denominator ____________________________.
   
   iii) Shaded fraction ____________________________.

   Comparing fractions when ...
   
   the numerator changes and the denominator stays the same
   
   fewer shaded parts → 1 \( \frac{1}{5} \) same number and size of parts
   
   more shaded parts → 2 \( \frac{2}{5} \)

   So \( \frac{2}{5} > \frac{1}{5} \) because more parts are shaded.

2. Circle the greater fraction.
   
   a) \( \frac{2}{5} \) or \( \frac{4}{5} \)
   
   b) \( \frac{3}{4} \) or \( \frac{1}{4} \)
   
   c) \( \frac{4}{10} \) or \( \frac{9}{10} \)
   
   d) \( \frac{3}{3} \) or \( \frac{1}{3} \)

3. Write any number in the blank that makes the relationship correct.
   
   a) \( \frac{3}{7} > \frac{1}{7} \)
   
   b) \( \frac{14}{29} < \frac{14}{29} \)
   
   c) \( \frac{61}{385} > \frac{61}{385} \)
   
   BONUS: \( \frac{2}{1000} < \frac{2}{1000} \)

4. Two fractions have the same denominator but different numerators. How can you tell which fraction is greater?
5. Use the number line to order the fractions from least to greatest. 
Draw an \(\times\) to mark the position of each fraction.

\[
\begin{array}{ccccccccccc}
0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\hline
\frac{6}{10} & \frac{1}{10} & \frac{8}{10} & \frac{4}{10} & \frac{2}{10} & \frac{9}{10} & \frac{5}{10} \\
\end{array}
\]

6. Order the fractions from least to greatest by considering the numerators and denominators.

a) \(\frac{3}{5}, \frac{0}{5}, \frac{2}{5}, \frac{5}{5}, \frac{1}{5}\)

b) \(\frac{6}{10}, \frac{1}{10}, \frac{4}{10}, \frac{2}{10}, \frac{9}{10}\)

7. a) What fraction of a litre is in the container?

b) Which fraction in part a) is …

i) the smallest? 
ii) the biggest? 
iii) in the middle? 

c) Write “smaller” or “bigger.” As the denominator gets bigger, each part gets \underline{\hspace{2cm}}.

Comparing fractions when ...

the numerator stays the same \hspace{4cm} and \hspace{4cm} the denominator changes

\[
\begin{align*}
\frac{1}{5} & \quad \text{smaller parts} \\
\frac{1}{3} & \quad \text{bigger parts} \\
\end{align*}
\]

So \(\frac{1}{5} < \frac{1}{3}\) because the parts are smaller in the shape with more parts.
8. Circle the greater fraction.
   a) $\frac{2}{5}$ or $\frac{2}{3}$
   b) $\frac{3}{4}$ or $\frac{3}{5}$
   c) $\frac{4}{5}$ or $\frac{4}{10}$
   d) $\frac{3}{4}$ or $\frac{3}{3}$

9. Write any number in the blank that makes the relationship correct.
   a) $\frac{3}{5} > \underline{8}$
   b) $\frac{14}{15} > \underline{\frac{29}{2}}$
   c) $\frac{9}{16} > \underline{9}$
   d) $\frac{20}{27} < \underline{20}$

10. Two fractions have the same numerator but different denominators. How can you tell which fraction is greater?

11. a) Order the fractions from least to greatest by matching each fraction to the strip it represents and then shading it.
   i) $\frac{1}{4}$ $\frac{1}{10}$ $\frac{1}{2}$ $\frac{1}{5}$ $\frac{1}{3}$
   ii) $\frac{2}{2}$ $\frac{2}{4}$ $\frac{2}{10}$ $\frac{2}{3}$ $\frac{2}{5}$

   b) Order the fractions from least to greatest by considering the numerators and denominators.
   i) $\frac{1}{4}$ $\frac{1}{10}$ $\frac{1}{2}$ $\frac{1}{5}$ $\frac{1}{3}$
   ii) $\frac{2}{2}$ $\frac{2}{4}$ $\frac{2}{10}$ $\frac{2}{3}$ $\frac{2}{5}$

   c) Are your answers for parts a) and b) the same? Explain.

Number Sense 4-48
12. Randi says that $\frac{1}{2}$ of a pie is less than $\frac{1}{10}$ of a pie. Is she correct? Explain.

13. Ray, Hanna, and Lynn each brought 1 cake to school for their year-end class party. None of the cakes are the same size. The teacher cut each cake into 8 equal pieces, so everyone in the class can have a piece. Ray says, “That's not fair at all!” and Lynn says, “That's perfectly fair!”
   a) Why does Ray think it's unfair?
   
   b) Why does Lynn think it's fair?

14. a) Write the fractions in the correct category.

   \[
   \begin{array}{cccc}
   \frac{3}{4} & \frac{1}{3} & \frac{2}{5} & \frac{4}{6} \\
   \frac{4}{9} & \frac{3}{7} & \frac{7}{8} & \frac{6}{10} \\
   \frac{5}{9} & \frac{2}{3} & \frac{1}{6} & \frac{3}{10} \\
   \end{array}
   \]

   \[
   \begin{array}{|c|c|}
   \hline
   0 \text{ to } \frac{1}{2} & \frac{1}{2} \text{ to } 1 \\
   \hline
   \frac{3}{4} & \\
   \hline
   \end{array}
   \]

   b) Use the results from part a) to write “<” or “>” in the box between the pair of fractions.

   i) $\frac{6}{10} \boxed{<} \frac{3}{7}$
   ii) $\frac{1}{3} \boxed{<} \frac{3}{4}$
   iii) $\frac{4}{6} \boxed{<} \frac{4}{9}$
   iv) $\frac{2}{5} \boxed{>\;} \frac{5}{9}$
   v) $\frac{2}{3} \boxed{<} \frac{3}{10}$
   vi) $\frac{3}{7} \boxed{<} \frac{7}{8}$
   vii) $\frac{5}{9} \boxed{<} \frac{1}{6}$
   viii) $\frac{4}{9} \boxed{\geq} \frac{3}{4}$
**NS4-52 Decimal Tenths and Place Value**

A tenth (or $\frac{1}{10}$) can be represented in different ways.

1. Write a fraction and a decimal for the shaded part in the boxes.
   a) $\frac{4}{10}$, 0.4
   b) 
   c) 

2. Write the decimal.
   a) 5 tenths = 0.5  
   b) 7 tenths = 
   c) 6 tenths = 
   d) 9 tenths = 
   e) 2 tenths = 
   f) 8 tenths = 
   g) 3 tenths = 
   **BONUS** 0 tenths = 

3. Shade to show the decimal.
   a) 0.3
   b) 0.8
   c) 0.5
   d) 0.6

4. Show the decimal on the number line.
   a) 0.8 of the distance from 0.0 to 1.0
   b) 0.3 of the distance from 0.0 to 1.0
   c) 0.5 of the distance from 0.0 to 1.0
   d) 0.9 of the distance from 0.0 to 1.0
5. Write the place value of the underlined digit.

a) 2.7  _______ ones _______

b) 53.9  _______ _______

c) 107.1  _______

d) 236.4     _______

e) 4501.8  _______

f) 7334.5  _______

g) 400.3  _______

h) 921.2  _______

i) 3677.8  _______

6. Write the place value of the digit 3 in the number. 
   Hint: First underline the 3 in the number.

a) 2361.9  _______

b) 405.3  _______

   c) 713.8  _______

d) 30.2  _______

   e) 3919.1  _______

   f) 2854.3  _______

g) 392.7  _______

h) 1636.2  _______

i) 3544.5  _______

7. Write the number into the place value chart.

<table>
<thead>
<tr>
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<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
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<th>Tens</th>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
In the number 2836.5:
- the digit 2 has a value of 2000—the value of the digit 2 is 2000;
- the digit 8 has a value of 800—the value of the digit 8 is 800;
- the digit 3 has a value of 30—the value of the digit 3 is 30;
- the digit 6 has a value of 6—the value of the digit 6 is 6; and
- the digit 5 has a value of $\frac{5}{10}$—the value of the digit 5 is $\frac{5}{10}$.

8. Write the value of each digit.

a) \[
\begin{array}{cccc}
6 & 5 & 4 & 7 \\
\end{array}
\]

b) \[
\begin{array}{cccc}
8 & 2 & 3 & 1 \\
\end{array}
\]

c) \[
\begin{array}{cccc}
3 & 2 & 0 & 5 \\
\end{array}
\]

9. What value does the digit 7 have in the number?

a) 732.6  
\[
\begin{array}{c}
700 \\
\end{array}
\]

b) 4107.9  
\[
\begin{array}{c}
\ \\
\end{array}
\]

c) 6171.2  
\[
\begin{array}{c}
\ \\
\end{array}
\]

d) 7384.5  
\[
\begin{array}{c}
\ \\
\end{array}
\]

e) 9062.7  
\[
\begin{array}{c}
\ \\
\end{array}
\]

f) 467.8  
\[
\begin{array}{c}
\ \\
\end{array}
\]

g) 1894.7  
\[
\begin{array}{c}
\ \\
\end{array}
\]

h) 2744.8  
\[
\begin{array}{c}
\ \\
\end{array}
\]

i) 7250.5  
\[
\begin{array}{c}
\ \\
\end{array}
\]

j) 6000.7  
\[
\begin{array}{c}
\ \\
\end{array}
\]

k) 3975.4  
\[
\begin{array}{c}
\ \\
\end{array}
\]

l) 743.1  
\[
\begin{array}{c}
\ \\
\end{array}
\]

10. Fill in the blank.

a) In the number 1969.5, the digit 6 stands for __60__.

b) In the number 5873.2, the digit 3 stands for ______.

c) In the number 7451.3, the value of the digit 7 is ______.

d) In the number 8003.9, the value of the digit 9 is ______.

e) In the number 4855.7, the value of the digit 8 is ______.

f) In the number 9201.4, the digit ____ is in the ones place.

g) In the number 3495.6, the digit ____ is in the hundreds place.

h) In the number 6467.5, the digit ____ is in the tenths place.
1. a) Write a fraction in each blank above the number line.

b) Write a decimal in each blank below the number line.

\[
\begin{array}{cccccccccc}
\frac{0}{10} & \frac{1}{10} & \frac{2}{10} & \frac{3}{10} & \frac{4}{10} & \frac{5}{10} & \frac{6}{10} & \frac{7}{10} & \frac{8}{10} & \frac{9}{10} & \frac{10}{10}
\end{array}
\]

\[
\begin{array}{cccccccccc}
0.0 & 0.1 & \_ & \_ & \_ & \_ & \_ & \_ & \_ & 1.0
\end{array}
\]

c) Which decimal is equal to the fraction?

i) \( \frac{5}{10} = \_ \)

ii) \( \frac{10}{10} = \_ \)

iii) \( \frac{0}{10} = \_ \)

2. a) Write a decimal in each blank below the number line.

b) Cross out each incorrect fraction and write the correct fraction above it.

\[
\begin{array}{cccccccccc}
\frac{0}{10} & \frac{1}{10} & \frac{2}{10} & \frac{3}{10} & \frac{4}{10} & \frac{5}{10} & \frac{6}{10} & \frac{7}{10} & \frac{8}{10} & \frac{9}{10} & \frac{10}{10}
\end{array}
\]

\[
\begin{array}{cccccccccc}
0 & 0.1 & \_ & \_ & \_ & \_ & \_ & \_ & \_ & 1.0
\end{array}
\]

3. a) Write a fraction in each blank above the number line.

b) Cross out each incorrect decimal on the number line and write the correct decimal below it.

\[
\begin{array}{cccccccccc}
\frac{0}{10} & \frac{1}{10} & \frac{2}{10} & \frac{3}{10} & \frac{4}{10} & \frac{5}{10} & \frac{6}{10} & \frac{7}{10} & \frac{8}{10} & \frac{9}{10} & \frac{10}{10}
\end{array}
\]

\[
\begin{array}{cccccccccc}
0.0 & 0.1 & 0.2 & 0.3 & 0.4 & 0.5 & 0.6 & 0.7 & 0.8 & 0.9 & 1.0
\end{array}
\]
4. a) Fill in the missing numerators and decimals on the number lines.

\[
\begin{array}{c}
\frac{0}{2} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\frac{1}{2} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\frac{2}{2} \\
\hline \\
\end{array}
\]

\[
\begin{array}{c}
0 \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\hline \\
\end{array}
\]

b) Write the decimal that the fraction is equal to.

i) \( \frac{0}{2} = 0.0 \)

ii) \( \frac{1}{2} = \quad \)

iii) \( \frac{2}{2} = \quad \)

**BONUS** Write the decimals that are not equal to any fraction in part b).

\[
\underline{0.1} \quad \underline{0.2} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\]

5. a) Fill in the missing fractions and decimals.

\[
\begin{array}{c}
\frac{0}{5} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\frac{2}{5} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\frac{5}{5} \\
\hline \\
\end{array}
\]

\[
\begin{array}{c}
0.0 \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\hline \\
\end{array}
\qquad
\begin{array}{c}
\underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\hline \\
\end{array}
\]

b) Write the decimal the fraction is equal to in part b).

i) \( \frac{4}{5} = \quad \)

ii) \( \frac{2}{5} = \quad \)

iii) \( \frac{5}{5} = \quad \)

iv) \( \frac{1}{5} = \quad \)

v) \( \frac{0}{5} = \quad \)

**BONUS** Write the decimals that are not equal to any fraction in part b).

\[
\underline{0.1} \quad \underline{0.3} \quad \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
\]

40
1. Write a decimal in each blank below the number line.
   a) 1.0 __ __ __ __ __ __ __ __ __ __ 2.0
   b) 5.7 __ __ __ __ __ __ __ __ __ __
   c) 63.4 __ __ __ __ __ __ __ __ __ __

2. a) How are the scales in Question 1 different from each other?
   _______________________________________________________________
   _______________________________________________________________

   b) How are the scales in Question 1 the same as each other?
   _______________________________________________________________
   _______________________________________________________________

You can write a decimal in words. Use “and” for the decimal point.
Examples: 12.3 = twelve and three tenths 2.8 = two and eight tenths

3. Fill in the missing number word.
   a) 3.1 = three and _______ one ______ tenths
   b) 18.7 = eighteen and _____________ tenths
   c) 6.5 = _____________ and five tenths
   d) 20.8 = _____________ and eight tenths

4. Write the equivalent words or decimal.
   a) 7.4 = __________________________
   b) 4.9 = __________________________
   c) nineteen and one tenth = __________
   d) sixty-two and four tenths = __________
5. Count the shaded tenths. Write the amount two ways.

a) \[
\begin{array}{c}
\text{16 tenths} = 1.6
\end{array}
\]

b) \[
\begin{array}{c}
\text{_____ tenths} = _____
\end{array}
\]

c) \[
\begin{array}{c}
\text{_____ tenths} = _____
\end{array}
\]

d) \[
\begin{array}{c}
\text{_____ tenths} = _____
\end{array}
\]

e) \[
\begin{array}{c}
\text{_____ tenths} = _____
\end{array}
\]

**BONUS**

\[
\begin{array}{c}
\text{_____ tenths} = _____
\end{array}
\]
Adding and Subtracting Decimals—to Tenths

A base ten representation for decimal tenths:

<table>
<thead>
<tr>
<th>1 one</th>
<th>1 tenth</th>
</tr>
</thead>
</table>

1. Regroup every 10 tenths as 1 one.

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

b) 16 tenths = _____ ones + _____ tenths
c) 23 tenths = _____ ones + _____ tenths
d) 49 tenths = _____ ones + _____ tenths
e) 52 tenths = _____ ones + _____ tenths

2. Regroup so that the tenths place value has a single digit.

a) 3 tenths + 12 tenths = ____ one + ____ tenths
b) 7 ones + 14 tenths = _____ ones + _____ tenths
c) 8 tens + 6 ones + 36 tenths = _____ tens + _____ ones + _____ tenths
d) 6 hundreds + 5 tens + 4 ones + 54 tenths = _____ hundreds + _____ tens + _____ ones + _____ tenths

BONUS 9 thousands + 3 hundreds + 7 tens + 2 ones + 28 tenths = _____ thousands + _____ hundreds + _____ tens + _____ ones + _____ tenths

3. Add by adding each place value.

a) 35.4 + 2.3
<table>
<thead>
<tr>
<th>Tens</th>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

b) 146.1 + 22.8
   | Hundreds | Tens | Ones | Tenths |
|-----|---------|------|------|--------|
+    |          |      |      |        |
| 3   | 7       | 7    |      |        |

Number Sense 4-56
4. Add by adding each place value. Then regroup.

a) \(14.5 + 3.6\)

\[
\begin{array}{c|c|c}
\text{Tens} & \text{Ones} & \text{Tenths} \\
\hline
1 & 4 & 5 \\
\hline
3 & 6 & \\
\hline
1 & 7 & 11 \\
\hline
1 & 8 & 1 \\
\end{array}
\]

b) \(25.8 + 12.6\)

\[
\begin{array}{c|c|c}
\text{Tens} & \text{Ones} & \text{Tenths} \\
\hline
\text{ } & \text{ } & \\
\hline
\text{ } & \text{ } & \\
\hline
\text{ } & \text{ } & \\
\hline
\text{ } & \text{ } & \\
\end{array}
\]

5. Add the decimals by lining up the decimal points.

a) \(6.5 + 3.2\)

\[
\begin{array}{c|c|c}
6 & 5 & \\
3 & 2 & \\
9 & 7 &
\end{array}
\]

b) \(11.3 + 32.5\)

c) \(65.6 + 2.3\)

d) \(37.2 + 42.6\)

You can show regrouping on a grid. Example: \(4.8 + 3.5\)

\[
\begin{array}{c|c|c}
\text{Tens} & \text{Ones} & \text{Tenths} \\
\hline
4 & 8 & \\
3 & 5 & \\
8 & 3 &
\end{array}
\]

\[
\begin{array}{c|c|c}
4 & 8 & \\
3 & 5 & \\
8 & 3 &
\end{array}
\]

8 tenths + 5 tenths = 13 tenths were regrouped as 1 one and 3 tenths

6. Add the decimals by lining up the decimal points. You will need to regroup.

a) \(6.7 + 1.8\)

\[
\begin{array}{c|c|c}
6 & 7 & \\
1 & 8 & \\
8 & 5 &
\end{array}
\]

b) \(24.7 + 4.3\)

c) \(57.2 + 31.9\)

d) \(63.4 + 12.6 + 1.5\)

On a grid, line up the decimal points and add the numbers. You may need to regroup more than once.

a) \(19.6 + 3.6\)

\[
\begin{array}{c|c|c}
1 & 9 & 6 \\
3 & 6 & \\
\end{array}
\]

b) \(37.9 + 30.5\)

c) \(126.8 + 2.9\)

d) \(314.5 + 56.7\)

8. Clara buys 3.8 kg of red apples and 2.9 kg of green apples. What is the total mass of the apples?

9. Jake weighs 45.9 kg and his dog, Spot, weighs 3.7 kg. What is their total weight in kg?
10. Subtract by crossing out ones and tenths blocks.
   a) \(2.8 - 0.6 = \underline{2.2}\)
   
   b) \(3.5 - 1.4 = \underline{2.1}\)

   c) \(5.7 - 3.5 = \underline{2.2}\)

   d) \(8.9 - 4.3 = \underline{4.6}\)

11. Represent some of the subtractions from Question 10 in tables by lining up the decimal points.
   a) \(2.8 - 0.6 = \underline{2.2}\)

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

   b) \(5.7 - 3.5 = \underline{2.2}\)

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

   c) \(8.9 - 4.3 = \underline{4.6}\)

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

12. Subtract the decimals by lining up the decimal points.
   a) \(10.7 - 10.3\)

   |   |   |
   | 1 | 0 | 7 |
   | 1 | 0 | 3 |
   | 0 | 0 | 4 |

   b) \(20.5 - 10.2\)

   |   |   |
   | 2 | 0 | 5 |
   | 1 | 0 | 2 |
   | 0 | 0 | 4 |

   c) \(13.4 - 2.2\)

   |   |   |
   | 1 | 3 | 4 |
   | 2 | 2 |
   | 0 | 0 |

   d) \(16.4 - 0.3\)

   |   |   |
   | 1 | 6 | 4 |
   | 1 | 6 |
   | 0 | 0 |

   e) \(52.5 - 11.5\)

   |   |   |
   | 5 | 2 | 5 |
   | 1 | 1 | 5 |
   | 0 | 0 | 0 |

   f) \(63.7 - 2.6\)

   |   |   |
   | 6 | 3 | 7 |
   | 2 | 6 |
   | 0 | 0 | 0 |

   g) \(78.8 - 7.1\)

   |   |   |
   | 7 | 8 | 8 |
   | 7 | 1 |
   | 0 | 0 | 0 |

   h) \(95.1 - 93.0\)

   |   |   |
   | 9 | 5 | 1 |
   | 9 | 3 |
   | 0 | 0 | 0 |

   i) \(4.8 - 4.4\)

   |   |   |
   | 4 | 8 |
   | 4 | 4 |
   | 0 | 0 | 0 |

   j) \(21.5 - 1.4\)

   |   |   |
   | 2 | 1 | 5 |
   | 2 | 1 |
   | 1 | 0 | 0 |

   k) \(45.5 - 12.4\)

   |   |   |
   | 4 | 5 | 5 |
   | 1 | 2 | 4 |
   | 0 | 0 | 0 |

   l) \(79.8 - 42.7\)

   |   |   |
   | 7 | 9 | 8 |
   | 4 | 2 | 7 |
   | 0 | 0 | 0 |
When subtracting decimals, you may have to regroup.

Example:

\[
\begin{array}{c}
\phantom{-}5.7 \\
- 1.8 \\
\hline
\phantom{-}3.9
\end{array}
\]  

Regroup 1 one as 10 tenths.

13. Exchange 1 one for 10 tenths.
   a) \(4 \text{ ones} + 0 \text{ tenths} = \underline{3} \text{ ones} + \underline{10} \text{ tenths}\)
   b) \(8 \text{ ones} + 0 \text{ tenths} = \underline{?} \text{ ones} + \underline{?} \text{ tenths}\)
   c) \(4 \text{ ones} + 3 \text{ tenths} = \underline{?} \text{ ones} + \underline{?} \text{ tenths}\)
   d) \(6 \text{ ones} + 8 \text{ tenths} = \underline{?} \text{ ones} + \underline{?} \text{ tenths}\)
   e) \(7 \text{ ones} + 4 \text{ tenths} = \underline{?} \text{ ones} + \underline{?} \text{ tenths}\)

**BONUS** \(9823 \text{ ones} + 19 \text{ tenths} = \underline{?} \text{ ones} + \underline{?} \text{ tenths}\)

14. Subtract the decimals. Put a decimal point in your answer on the grid.
   a) \(8.1 - 5.8\)
   b) \(5.7 - 3.9\)
   c) \(6.1 - 4.2\)
   d) \(2.4 - 0.7\)

\[
\begin{array}{c}
8.1 \\
- 5.8 \\
\hline
2.3
\end{array}
\]  

\[
\begin{array}{c}
5.7 \\
- 3.9 \\
\hline
1.8
\end{array}
\]  

\[
\begin{array}{c}
6.1 \\
- 4.2 \\
\hline
1.9
\end{array}
\]  

\[
\begin{array}{c}
2.4 \\
- 0.7 \\
\hline
1.7
\end{array}
\]

\[
\begin{array}{c}
4.5 \\
- 2.6 \\
\hline
1.9
\end{array}
\]

\[
\begin{array}{c}
31.1 \\
- 22.2 \\
\hline
8.9
\end{array}
\]

\[
\begin{array}{c}
57.4 \\
- 6.6 \\
\hline
50.8
\end{array}
\]

**BONUS** \(105.2 - 1.9\)

15. To calculate the sum, write the decimals as fractions with a common denominator.
   a) \(0.27 + 0.6 = \frac{27}{100} + \frac{6}{10} = \frac{27}{100} + \frac{60}{100} = \frac{87}{100} = 0.87\)
   b) \(0.57 + 0.76 = \frac{57}{100} + \frac{76}{100} = \frac{133}{100} = 1.33\)
   c) \(2.02 + 0.99 = \frac{202}{100} + \frac{99}{100} = \frac{291}{100} = 2.91\)
16. Subtract the decimals.
   a) \(8.7 - 2.6\)
   b) \(29.4 - 13.1\)
   c) \(75.8 - 43.6\)

17. Add or subtract mentally.
   a) \(0.5 + 0.3 = \)
   b) \(4.9 - 2.8 = \)
   c) \(7.9 - 4.2 = \)
   d) \(2.3 + 1.2 = \)
   e) \(5.7 - 1.6 = \)
   f) \(6.7 - 2.5 = \)
   g) \(6.3 + 2.5 = \)
   h) \(4.3 - 2.1 = \)
   i) \(9.4 - 7.4 = \)

18. What is the difference in the thickness of the coins?
   a) a quarter (1.6 mm) and a dime (1.2 mm)
   b) a nickel (1.8 mm) and a quarter (1.6 mm)

19. Sara made fruit drink by mixing 1.2 L of juice with 0.9 L of ginger ale. How many litres of fruit drink did she make?

20. A large leopard, including its head, body, and tail, is 3.3 m long. Its tail is 1.4 m long. What is the length of the leopard’s head and body altogether?
One dime is \( \frac{1}{10} \) of a dollar. One cent is \( \frac{1}{100} \) of a dollar.

1. Write the fraction of a dollar the amount represents.
   a) 4 cents
   b) 3 dimes
   c) 6 dimes
   d) 34 cents

2. Write how many cents the dimes are worth. Then write a fraction equation.
   a) 3 dimes = \( \frac{30}{100} \) cents
   b) 7 dimes = \( \frac{70}{100} \) cents
   c) 8 dimes = \( \frac{80}{100} \) cents
   d) 5 dimes = \( \frac{50}{100} \) cents

3. Complete the table.

<table>
<thead>
<tr>
<th>Fraction of a Dollar (Tenths)</th>
<th>Number of Dimes</th>
<th>Number of Cents</th>
<th>Fraction of a Dollar (Hundredths)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) ( \frac{4}{10} )</td>
<td>4</td>
<td>40</td>
<td>( \frac{40}{100} )</td>
</tr>
<tr>
<td>b)</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td></td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>d) ( \frac{3}{10} )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Yu says 37 pennies are worth more than 5 dimes because 37 coins are more than 5 coins. Is she right? Explain.

5. Shade the same amount in the second square. Then count by 10s to write the number of hundredths.

a) \( \frac{3}{10} \) = \( \frac{30}{100} \)

b) \( \frac{5}{10} \) = \( \frac{50}{100} \)
6. Count the columns to write the tenths. Count by 10s to write the hundredths.

<table>
<thead>
<tr>
<th>Picture</th>
<th>Tenths</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="grid1.png" alt="Picture" /></td>
<td>$\frac{2}{10}$</td>
<td>$\frac{20}{100}$</td>
</tr>
<tr>
<td><img src="grid2.png" alt="Picture" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Count the number of hundredths. Write your answer two ways.
Hint: Count by tens and then by ones.

<table>
<thead>
<tr>
<th>Picture</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="grid3.png" alt="Picture" /></td>
<td></td>
</tr>
<tr>
<td><img src="grid4.png" alt="Picture" /></td>
<td></td>
</tr>
</tbody>
</table>

8. Shade the fraction.

<table>
<thead>
<tr>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{47}{100}$</td>
</tr>
<tr>
<td>$\frac{3}{10}$</td>
</tr>
<tr>
<td>5 hundredths</td>
</tr>
<tr>
<td>4 tenths</td>
</tr>
</tbody>
</table>

9. Shade the fraction. Then circle the greater fraction in the pair.

<table>
<thead>
<tr>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{38}{100}$</td>
</tr>
<tr>
<td>$\frac{6}{10}$</td>
</tr>
<tr>
<td>$\frac{4}{100}$</td>
</tr>
<tr>
<td>$\frac{7}{10}$</td>
</tr>
</tbody>
</table>

10. Marko says that $\frac{17}{100}$ is greater than $\frac{8}{10}$ because 17 is greater than 8.
Is Marko correct? Explain.
A **hundredth** (or \(\frac{1}{100}\)) can be represented in different ways.

A hundredth of the distance from 0 to 1

Examples: \(\frac{1}{100} = 0.01\), \(\frac{8}{100} = 0.08\), \(\frac{37}{100} = 0.37\)

1. Write a fraction for the shaded part of the hundreds block. Then write the fraction as a decimal. Hint: Count by 10s for each column or row that is shaded.
   a) \(\frac{60}{100} = 0.60\)
   b) \(\frac{30}{100} = 0.30\)
   c) \(\frac{50}{100} = 0.50\)
   d) \(\frac{10}{100} = 0.10\)
   e) \(\frac{20}{100} = 0.20\)
   f) \(\frac{40}{100} = 0.40\)

2. Write the decimal hundredths.
   a) 18 hundredths = \[\frac{18}{100} = 0.18\]
   b) 9 hundredths = \[\frac{9}{100} = 0.09\]
   c) 90 hundredths = \[\frac{90}{100} = 0.90\]
   d) 10 hundredths = \[\frac{10}{100} = 0.10\]
   e) 52 hundredths = \[\frac{52}{100} = 0.52\]
   f) 99 hundredths = \[\frac{99}{100} = 0.99\]

3. Shade the same amount in the second square. Then count by 10s to find the number of hundredths. Write your answer as a fraction and a decimal.
   a) \(\frac{3}{10} = \frac{30}{100}\)
   b) \(\frac{9}{10} = \frac{90}{100}\)
   c) \(\frac{6}{10} = \frac{60}{100}\)
   d) \(0.3 = 0.30\)
   e) \(0.9 = 0.90\)
   f) \(0.6 = 0.60\)
4. a) Complete the table.

<table>
<thead>
<tr>
<th>Fraction Tenths</th>
<th>Fraction Hundredths</th>
<th>Picture</th>
<th>Decimal Tenths</th>
<th>Decimal Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) (\frac{2}{10})</td>
<td>(\frac{20}{100})</td>
<td>![Picture 1]</td>
<td>0.2</td>
<td>0.20</td>
</tr>
<tr>
<td>ii)</td>
<td>![Picture 2]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii)</td>
<td>![Picture 3]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) i) Circle the decimal that is greatest and underline the decimal that is least: 0.40 0.20 0.70
ii) Use your answer to part b) i) to write the decimals from least to greatest:

\[
\underline{0.20} < \underline{0.40} < 0.70
\]

c) Use your answer to part a) to write the decimals from least to greatest: 0.40 0.20 0.70

\[
0.20 < \underline{0.40} < \underline{0.70}
\]

d) Are the answers in part b) ii) and part c) the same? ________

5. Complete the table.

<table>
<thead>
<tr>
<th>Fraction Tenths</th>
<th>Fraction Hundredths</th>
<th>Decimal Tenths</th>
<th>Decimal Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) (\frac{4}{10})</td>
<td>(\frac{40}{100})</td>
<td>0.4</td>
<td>0.40</td>
</tr>
<tr>
<td>b) (\frac{3}{10})</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NS4-60  Combining Tenths and Hundredths

1. Describe the shaded parts in two ways.
   a) 
   
   \[ 1.38 = 1 \text{ one} 3 \text{ tenths} 8 \text{ hundredths} \]
   b) 
   
   \[ \text{ } = \text{ } \text{ ones} \text{ } \text{ tenths} \text{ } \text{ hundredths} \]
   c) 
   
   \[ \text{ } = \text{ } 1 \text{ one} \text{ tenths} \text{ hundredths} \]
   d) 
   
   \[ \text{ } = \text{ } \text{ ones} \text{ } \text{ tenths} \text{ } \text{ hundredths} \]

2. Fill in the blanks.
   a) 71 hundredths = \( \frac{71}{100} = 0.71 \text{ tenths} 1\text{ hundredth} \)
   b) 28 hundredths = \( \frac{28}{100} = 0.28 \text{ tenths} \text{ hundredths} \)
   c) 41 hundredths = \( \frac{41}{100} = 0.41 \text{ tenths} \text{ hundredths} \)
   d) 60 hundredths = \( \frac{60}{100} = 0.60 \text{ tenths} \text{ hundredths} \)
   e) 53 hundredths = \( \frac{53}{100} = 0.53 \text{ tenths} \text{ hundredths} \)
   f) 12 hundredths = \( \frac{12}{100} = 0.12 \text{ tenths} \text{ hundredths} \)
   g) 36 hundredths = \( \frac{36}{100} = 0.36 \text{ tenths} \text{ hundredths} \)
   h) 92 hundredths = \( \frac{92}{100} = 0.92 \text{ tenths} \text{ hundredths} \)
3. Describe the decimal in two ways.
   a) 3.70 = __ ones __ tenths __ hundredths
      = 3 and 70 hundredths
   b) 0.04 = __ tenths __ hundredths
      = 0 hundredths
   c) 0.52 = __ tenths __ hundredths
      = __ hundredths
   d) 6.02 = __ ones __ tenths __ hundredths
      = __ hundredths
   e) 0.83 = __ tenths __ hundredths
      = __ hundredths
   f) 5.55 = __ tenths __ hundredths
      = __ hundredths
   g) 1.06 = __ one __ tenths __ hundredths
      = __ hundredths
   h) 8.90 = __ ones __ tenths __ hundredths
      = __ hundredths

4. Write the number in expanded form.
   a) 2.95 = ______ + ______ + ______
   b) 5408.41 = ______ + ______ + ______ + ______ + ______
   c) 237.06 = ______ + ______ + ______ + ______
   d) 67.23 = ______ + ______ + ______

Cameron describes the distance covered on a number line in two ways.

5. Write the distance covered in two ways.
   a) 0.43 hundredths = 4 tenths 3 hundredths
   b) A. __ tenths __ hundredths
      = __ hundredths
      B. __ tenths __ hundredths
      = __ hundredths
   c) C. __ tenths __ hundredths
      = __ hundredths
      D. __ tenths __ hundredths
      = __ hundredths
REMINDER ► A metre is 100 centimetres.

6. What part of a metre is the length shown? Write your answer as a decimal and a fraction.

a) ![Ruler](image)

$83 \text{ cm} = \underline{0.83} \text{ m} = \underline{\frac{83}{100}} \text{ m}$

b) ![Ruler](image)

$58 \text{ cm} = \underline{\text{m}} = \underline{\text{m}}$

c) ![Ruler](image)

$13 \text{ cm} = \underline{\text{m}} = \underline{\text{m}}$

d) ![Ruler](image)

$91 \text{ cm} = \underline{\text{m}} = \underline{\text{m}}$

e) ![Ruler](image)

$6 \text{ cm} = \underline{\text{m}} = \underline{\text{m}}$

f) ![Ruler](image)

$30 \text{ cm} = \underline{\text{m}} = \underline{\text{m}}$
NS4-61 Adding and Subtracting to Hundredths

A base ten representation for decimal tenths and hundredths:

1 one 1 tenth 1 hundredth = 1 one = 10 tenths 1 tenth = 10 hundredths

1. Regroup so that each place value has a single digit.
   a) 2 ones + 14 tenths + 22 hundredths
      = 3 ones + 6 tenths + 2 hundredths
   b) 3 ones + 43 hundredths
      =
   c) 26 tenths + 1 hundredth
      =
   d) 5 ones + 8 tenths + 15 hundredths
      =

2. Regroup so that each place value has a single digit.
   a) 5 ones + 12 tenths + 17 hundredths = ___6___ ones + ___3___ tenths + ___7___ hundredths
   b) 16 tenths + 22 hundredths = ______ one + ______ tenths + ______ hundredths
   c) 7 ones + 13 tenths + 20 hundredths = ______ ones + ______ tenths + ______ hundredths
   d) 1 one + 76 tenths + 16 hundredths = ______ ones + ______ tenths + ______ hundredths

BONUS: 9 ones + 13 tenths + 52 hundredths = ______ ten + ______ ones + ______ tenths + ______ hundredths
3. Add by lining up the decimal points. You may need to regroup more than once.

a) \(7.15 + 2.46\)

\[
\begin{array}{c}
7.15 \\
+ 2.46 \\
\hline 9.61 \\
\end{array}
\]

b) \(34.64 + 21.27\)

\[
\begin{array}{c}
34.64 \\
+ 21.27 \\
\hline 55.91 \\
\end{array}
\]

c) \(68.89 + 22.31\)

\[
\begin{array}{c}
68.89 \\
+ 22.31 \\
\hline 91.20 \\
\end{array}
\]

4. On a grid, line up the decimal points and then add.

a) \(34.9 + 5.77\)

\[
\begin{array}{c}
34.9 \\
+ 5.77 \\
\hline 40.67 \\
\end{array}
\]

b) \(62.95 + 27.1\)

\[
\begin{array}{c}
62.95 \\
+ 27.1 \\
\hline 89.95 \\
\end{array}
\]

c) \(53.8 + 8.03\)

\[
\begin{array}{c}
53.8 \\
+ 8.03 \\
\hline 61.83 \\
\end{array}
\]

d) \(1.46 + 17.8\)

\[
\begin{array}{c}
1.46 \\
+ 17.8 \\
\hline 19.26 \\
\end{array}
\]

e) \(0.41 + 3.8\)

\[
\begin{array}{c}
0.41 \\
+ 3.8 \\
\hline 4.21 \\
\end{array}
\]

f) \(4.25 + 1.9\)

\[
\begin{array}{c}
4.25 \\
+ 1.9 \\
\hline 6.15 \\
\end{array}
\]

g) \(7.8 + 12.64\)

\[
\begin{array}{c}
7.8 \\
+ 12.64 \\
\hline 20.44 \\
\end{array}
\]

h) \(2.54 + 53.7\)

\[
\begin{array}{c}
2.54 \\
+ 53.7 \\
\hline 56.24 \\
\end{array}
\]

5. Exchange 1 tenth for 10 hundredths.

a) \(6 \text{ tenths} + 0 \text{ hundredths} = \underline{5} \text{ tenths} + \underline{10} \text{ hundredths}\

b) \(9 \text{ tenths} + 4 \text{ hundredths} = \underline{8} \text{ tenths} + \underline{14} \text{ hundredths}\

c) \(1 \text{ tenth} + 6 \text{ hundredths} = \underline{1} \text{ tenth} + \underline{6} \text{ hundredths}\

d) \(8 \text{ tenths} + 8 \text{ hundredths} = \underline{7} \text{ tenths} + \underline{18} \text{ hundredths}\

6. Subtract by lining up the decimal points. You may need to regroup more than once.

a) \(1.75 - 0.68\)

\[
\begin{array}{c}
1.75 \\
- 0.68 \\
\hline 1.07 \\
\end{array}
\]

b) \(4.12 - 0.09\)

\[
\begin{array}{c}
4.12 \\
- 0.09 \\
\hline 4.03 \\
\end{array}
\]

c) \(7.23 - 6.14\)

\[
\begin{array}{c}
7.23 \\
- 6.14 \\
\hline 1.09 \\
\end{array}
\]

d) \(9.14 - 1.06\)

\[
\begin{array}{c}
9.14 \\
- 1.06 \\
\hline 8.08 \\
\end{array}
\]

e) \(43.52 - 25.9\)

\[
\begin{array}{c}
43.52 \\
- 25.9 \\
\hline 17.62 \\
\end{array}
\]

f) \(35.3 - 18.49\)

\[
\begin{array}{c}
35.3 \\
- 18.49 \\
\hline 16.81 \\
\end{array}
\]

g) \(63.07 - 2.7\)

\[
\begin{array}{c}
63.07 \\
- 2.7 \\
\hline 60.37 \\
\end{array}
\]

h) \(78.4 - 54.72\)

\[
\begin{array}{c}
78.4 \\
- 54.72 \\
\hline 23.68 \\
\end{array}
\]

7. a) Iva draws three lines. The first line is 14.4 cm long, the second line is 25.62 cm long, and the third line is 6.08 cm long. What is the total length of the lines?

b) Iva erases 2.4 cm from the line that is 6.08 cm long. What is the total length of the lines now?

c) Did you need to know which line she erased from to answer the question in part b)? Explain.
PA4-13 **Introduction to Algebra—Multiplication and Division**

1. Draw the same number of apples in each box. Write the equation for the picture.
   a) \[
   \begin{array}{c}
   \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} = \text{\includegraphics[width=1in]{apple.png}}
   \\
   \square + \square = 10
   \end{array}
   \]
   b) \[
   \begin{array}{c}
   \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} = \text{\includegraphics[width=1in]{apple.png}}
   \end{array}
   \]

2. Draw a picture for the equation. Use your picture to solve the equation.
   a) \[
   \begin{array}{c}
   3 \times \text{\includegraphics[width=1in]{apple.png}} = \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}}
   \\
   3 \times \square = 12
   \end{array}
   \]
   b) \[
   \begin{array}{c}
   2 \times \text{\includegraphics[width=1in]{apple.png}} = \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}}
   \\
   2 \times \square = 12
   \end{array}
   \]
   c) \[
   \begin{array}{c}
   3 \times \text{\includegraphics[width=1in]{apple.png}} = \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}}
   \\
   3 \times \square = 15
   \end{array}
   \]
   d) \[
   \begin{array}{c}
   6 \times \text{\includegraphics[width=1in]{apple.png}} = \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}}
   \\
   6 \times \square = 18
   \end{array}
   \]
   e) \[
   \begin{array}{c}
   \text{\includegraphics[width=1in]{apple.png}} \times 2 = \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}}
   \\
   \square \times 2 = 10
   \end{array}
   \]
   f) \[
   \begin{array}{c}
   \text{\includegraphics[width=1in]{apple.png}} \times 5 = \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}} + \text{\includegraphics[width=1in]{apple.png}}
   \\
   \square \times 5 = 20
   \end{array}
   \]
3. How many apples should be in the box? Write the number.
   a) \(2 \times 3 = \)  
   b) \(2 \times \)  
   c) \(3 \times \)  
   d) \(\) \(4 = \)  
   e) \(\) \(3 = \)  
   f) \(3 \times \)  
   g) \(\) \(2 = \)  
   h) \(7 \times \)  

**BONUS ➤** There are 10 apples in the bag. What number goes in the box?

\[3 \times \]  

4. Solve the equation by guessing and checking.
   a) \(5 \times \)  = 30  
   b) \(18 \div 2 = \)  
   c) \(30 \div \)  = 5  
   d) \(\) \(7 = 77\)  
   e) \(24 \div \)  = 6  
   f) \(\) \(5 = 10\)  
   g) \(5 \times 40 = \)  
   h) \(\) \(4 = 7\)  

5. Rewrite the multiplication as division, then solve the equation.
   a) \(\) \(2 = 26\)  
   b) \(96 = 3 \times \)  
   c) \(\) \(4 = 80\)  
   d) \(100 = \) \(20\)  
   e) \(\) \(4 = 88\)  
   f) \(150 = 50 \times \)
1. Circle the equations where the unknown is by itself.

\[ x = 7 + 2 \quad w + 5 = 10 \quad 5 - 3 = a \quad 6 - b = 4 \quad k = 12 \div 3 \]

<table>
<thead>
<tr>
<th>Total</th>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are 3 equations for a total and two parts:

\begin{align*}
\text{Total} &= \text{Part 1} + \text{Part 2} \\
\text{Part 1} &= \text{Total} - \text{Part 2} \\
\text{Part 2} &= \text{Total} - \text{Part 1}
\end{align*}

2. Write three equations for the table. Circle the equation where the unknown is by itself.

a) \[ \begin{array}{c|c}
\text{k} & \\
8 & 5 \\
\hline
\end{array} \]

\[ k = \frac{8 + 5}{\text{Total}} \]

\[ \begin{align*}
\text{Part 1} &= \frac{k - 5}{\text{Total}} \\
\text{Part 2} &= \frac{k - 8}{\text{Total}}
\end{align*} \]

c) \[ \begin{array}{c|c}
\text{k} & \\
17 & 3 \\
\hline
\end{array} \]

d) \[ \begin{array}{c|c}
\text{k} & \\
215 & 65 \\
\hline
\end{array} \]

\[ \begin{align*}
\text{Total} &= \text{Part 1} + \text{Part 2} \\
\text{Part 1} &= \text{Total} - \text{Part 2} \\
\text{Part 2} &= \text{Total} - \text{Part 1}
\end{align*} \]
3. Write an equation where \( m \) is by itself.

\[
\begin{array}{c|c}
\text{a)} & \begin{array}{c|c|c}
17 & \text{m} \\
12 &
\end{array} \\
\text{b)} & \begin{array}{c|c}
8 & \text{m} \\
\text{c)} & \begin{array}{c|c}
m & \text{11} \\
\text{d)} & \begin{array}{c|c}
9 & \text{m} \\
\end{array} \\
\end{array} \\
\end{array}
\]
\[m = 17 - 12\]

4. Fill in the table. Write \( m \) for the number you are not given.

<table>
<thead>
<tr>
<th>Green Grapes</th>
<th>Purple Grapes</th>
<th>Total Number of Grapes</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 6 green grapes</td>
<td>14 grapes in total</td>
<td>6</td>
<td>( m = 14 - 6 )</td>
</tr>
<tr>
<td>b) 5 green grapes</td>
<td>3 purple grapes</td>
<td>m</td>
<td>14</td>
</tr>
<tr>
<td>c) 11 grapes in total</td>
<td>9 green grapes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) 7 purple grapes</td>
<td>16 grapes altogether</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) 34 purple grapes</td>
<td>21 green grapes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) 71 grapes altogether</td>
<td>45 purple grapes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BONUS**

| 131 purple grapes | 26 green grapes | | |

5. Circle the total in the story. Then write an equation and solve it.

\[
\begin{array}{c}
\text{a) 6 green grapes} \\
\text{9 grapes altogether} \\
x \text{purple grapes} \\
x = 9 - 6 \\
x = 3
\end{array}
\]

\[
\begin{array}{c}
\text{b) 3 green grapes} \\
4 \text{ purple grapes} \\
x \text{ grapes altogether} \\
x = 3
\end{array}
\]

\[
\begin{array}{c}
\text{c) 11 grapes altogether} \\
7 \text{ purple grapes} \\
x \text{ green grapes} \\
x = 3
\end{array}
\]

\[
\begin{array}{c}
\text{d) There are 6 cats.} \\
\text{There are 12 dogs.} \\
\text{There are } x \text{ pets altogether.}
\end{array}
\]

\[
\begin{array}{c}
\text{e) There are 9 marbles.} \\
x \text{ of them are red.} \\
5 \text{ of them are not red.}
\end{array}
\]

\[
\begin{array}{c}
\text{f) Rick has 8 cousins.} \\
x \text{ of them are boys.} \\
3 \text{ of them are girls.}
\end{array}
\]
PA4-15 Differences and Equations

There are three equations for a difference and two parts:

<table>
<thead>
<tr>
<th>Larger Part</th>
<th>Smaller Part</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference  = Larger Part − Smaller Part</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larger Part  = Smaller Part + Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smaller Part  = Larger Part − Difference</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Write three equations for the table. Circle the equation where the unknown is by itself.

a) \[
\begin{align*}
\text{Larger Part} & = b \\
\text{Small Part} & = 4 \\
\text{Difference} & = 10
\end{align*}
\]

\[
\text{Difference} \quad \text{Larger Part} \quad \text{Smaller Part}
\]

\[
\text{Larger Part} \quad \text{Smaller Part} \quad \text{Difference}
\]

\[
\text{Smaller Part} \quad \text{Larger Part} \quad \text{Difference}
\]

b) \[
\begin{align*}
\text{Larger Part} & = 10 \\
\text{Small Part} & = 4 \\
\text{Difference} & = b
\end{align*}
\]

\[
\text{Difference} \quad \text{Larger Part} \quad \text{Smaller Part}
\]

\[
\text{Larger Part} \quad \text{Smaller Part} \quad \text{Difference}
\]

\[
\text{Smaller Part} \quad \text{Larger Part} \quad \text{Difference}
\]

c) \[
\begin{align*}
\text{Larger Part} & = 34 \\
\text{Small Part} & = b \\
\text{Difference} & = 9
\end{align*}
\]

\[
\text{Difference} \quad \text{Larger Part} \quad \text{Smaller Part}
\]

\[
\text{Larger Part} \quad \text{Small Part} \quad \text{Difference}
\]

\[
\text{Smaller Part} \quad \text{Larger Part} \quad \text{Difference}
\]

2. Fill in the table. Write x for the number you are not given. Circle the part that is larger. Write an equation where the unknown is by itself.

<table>
<thead>
<tr>
<th>Parts</th>
<th>Difference</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cats</td>
<td>Dogs</td>
<td></td>
</tr>
<tr>
<td>a) 7 cats; 12 more dogs than cats</td>
<td>(7) (x)</td>
<td>12</td>
</tr>
<tr>
<td>b) 5 cats; 3 dogs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) 11 more dogs than cats; 8 cats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) 9 dogs; 3 fewer cats than dogs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) 17 dogs; 13 fewer dogs than cats</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BONUS ►

<table>
<thead>
<tr>
<th>Parts</th>
<th>Difference</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cats</td>
<td>Dogs</td>
<td></td>
</tr>
<tr>
<td>100 cats; 20 fewer dogs than cats</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Circle the part that is larger. Underline the difference.
   a) There are 9 hats. There are x scarves. There are 4 more hats than scarves.
   b) There are x hats. There are 7 scarves. There are 5 fewer hats than scarves.
   c) There are 5 hats. There are 6 scarves. There are x fewer hats than scarves.

4. Fill in the table. Write x for the number you are not given. Circle the part that is larger.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Jun has 48 American stamps in his collection. He has 12 more</td>
<td>American stamps</td>
<td>48</td>
<td>12</td>
<td>x = 48 − 12</td>
</tr>
<tr>
<td>American stamps than Canadian stamps. How many Canadian stamps does he have?</td>
<td></td>
<td>x</td>
<td></td>
<td>x = 36</td>
</tr>
<tr>
<td>b) Lela has 12 red marbles. She has 8 green marbles. How many more red marbles than green marbles does she have?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) There are 13 dogs in a shelter. There are 7 more cats than dogs in the shelter. How many cats are there?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) A bulldog weighs 7 kg less than a boxer. The boxer weighs 35 kg. How much does the bulldog weigh?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Write an equation where the unknown is by itself. Then solve the equation.
   a) Dory hikes 8 km on Saturday. She hikes 3 km more on Sunday than on Saturday. How many kilometres did she hike on Sunday?
   b) 17 cars are parked in the school parking lot. There are 8 fewer vans than cars in the same lot. How many vans are there?
   c) A dalmatian weighs 29 kg. A dingo weighs 8 kg less. How much does the dingo weigh?
   d) Aputik biked 42 km on Saturday. On Sunday, she biked 12 km more than on Saturday. How far did she bike on Sunday?
   e) Carl counted 38 robins in his backyard on Monday and 29 robins on Tuesday. How many more robins flew through Carl’s backyard on Monday?
   f) Sally counted 72 shooting stars on one night. The next night she saw 24 fewer stars than on the first night. How many shooting stars did she see on the second night?
## Addition and Subtraction Word Problems

1. Fill in the table. Write $x$ for the number you need to find. Cross out the information you do not use.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Parts</th>
<th>How Many?</th>
<th>Difference Total</th>
<th>Equation and Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Neka has 4 kg of apples and 5 kg of pears. How many kilograms of fruit does he have?</td>
<td>apples</td>
<td>4 kg</td>
<td>Difference:</td>
<td>$x = 4 + 5$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total:</td>
<td>$x = 9$</td>
</tr>
<tr>
<td></td>
<td>pears</td>
<td>5 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Karen biked 47 km on Monday. She biked 54 km on Tuesday. How far did Karen bike in two days?</td>
<td>distance on Monday</td>
<td>Difference:</td>
<td>Total:</td>
<td></td>
</tr>
<tr>
<td>c) Alice raised $32 for charity. Ben raised $9 less than Alice. How much money did Ben raise?</td>
<td>Difference:</td>
<td>Total:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Alexa bought 3000 millilitres of apple juice. She bought 2000 more millilitres of apple juice than plum juice. How much plum juice did she buy?</td>
<td>Difference:</td>
<td>Total:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) The cafeteria sold 350 cartons of milk. 198 of them were cartons of white milk. The rest were chocolate milk. How many cartons of chocolate milk did the cafeteria sell?</td>
<td>Difference:</td>
<td>Total:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) The height of Mount Kilimanjaro is 5895 m. That is 2953 m less than the height of Mount Everest. How tall is Mount Everest?</td>
<td>Difference:</td>
<td>Total:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. The world's tallest tree is about 116 m tall. The Horseshoe Falls at Niagara Falls is about 51 m tall. How much taller is the tallest tree than the Horseshoe Falls?

3. Solve the problem. Use your answer from part i) as data for part ii).
   a) i) Tom bought 9 hockey cards and 6 baseball cards. How many cards did he buy altogether?
      ii) Tom gave away 5 cards. How many does he have left?
   b) There are 24 players on a hockey team, and 15 of them are new to the team.
      i) How many players are not new to the team?
      ii) How many more new players than not new players are on the team?

4. Solve the two-step problem.
   a) Sara bought 8 red jelly beans and 5 white jelly beans. She ate 4 of them. How many jelly beans does she have left?
   b) Marko downloaded 7 songs. He downloaded 3 more songs than movies. How many songs and movies did he download altogether?
   c) Ray had $32. He bought the book, magazine, and scissors below. How much money does he have left?

5. Ivan invited 10 friends from school and 8 friends from camp to his birthday party.
   a) How many more friends from school than friends from camp were supposed to be at the party?
   b) Two friends from school and three friends from camp could not come to the party. How many friends were at the party?
   c) Were there more friends from school or more friends from camp at the party? How many more?

6. The table shows the number of cars arriving at the train station parking lot. No cars leave the lot in the morning.
   a) How many cars are parked in the lot at 7:00 a.m.?
   b) How many cars are parked in the lot at 8:00 a.m.?
   c) There are 1008 spaces in total in the lot. How many are still available at 8:00 a.m.?

<table>
<thead>
<tr>
<th>Time</th>
<th>Number of Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 6:00 a.m.</td>
<td>378</td>
</tr>
<tr>
<td>From 6:00 a.m.</td>
<td>459</td>
</tr>
<tr>
<td>From 7:00 a.m.</td>
<td>125</td>
</tr>
</tbody>
</table>
1. Draw a model for the story.
   a) Don has 5 stamps. Jasmin has 3 times as many as Don does.

   \[\begin{array}{c}
   \text{Don's stamps:} \\
   5 \\
   \text{Jasmin's stamps:} \\
   5 \quad 5 \quad 5
   \end{array}\]

   b) There are 3 red grapes. There are 5 times as many green grapes as red grapes.

   

   c) There are 16 green pears. There are 4 times as many red pears as green pears.

   

   d) Anne has 4 markers. Fred has 5 times as many markers as Anne.

2. Solve the problem by drawing a model.
   a) Ansel has 6 stamps. Jen has 3 times as many stamps as Ansel. How many stamps do they have altogether?

   \[\begin{array}{c}
   \text{Ansel's stamps:} \\
   6 \\
   \text{Jen's stamps:} \\
   6 \quad 6 \quad 6
   \end{array}\]

   \[6 + 18 = 24, \text{ so Jen and Ansel have 24 stamps altogether.}\]

   b) Lewis studies spiders and scorpions. He has 6 spiders and twice as many scorpions. How many spiders and scorpions does he have altogether?

   

   c) There are 4 hamsters in a store. There are six times as many mice in the store. How many mice and hamsters are there altogether?
3. Draw a model for the story.
   a) Mandy has four times as many stickers as Ethan.
      \[\text{Mandy's stickers: } \square \square \square \square \square \square \]
      \[\text{Ethan's stickers: } \square \square \square \]
   b) Mary is three times as old as Armand.
       \[\square \square \square \square \]
       \[\square \square \square \square \]
   c) There are five times as many green grapes as red grapes.
       \[\square \square \square \square \]
       \[\square \square \square \]
   d) A book is two times thicker than a notebook.
       \[\square \square \square \square \]
       \[\square \square \square \]
   e) There are three times as many lizards as snakes in the zoo.
       \[\square \square \square \square \]
       \[\square \square \]

4. Draw a model for the story. Then write the given number beside the correct bar.
   a) There are 20 carrots. There are 4 times as many carrots as potatoes.
      \[\text{carrots: 20 } \square \square \square \square \square \square \square \]
      \[\text{potatoes: } \square \]
   b) There are 30 cars in a parking lot. There are 6 times as many cars as vans in the lot.
      \[\square \square \square \square \square \square \square \square \]
      \[\square \square \square \square \square \]
   c) Nora chopped up 70 carrots and twice as many little tomatoes for a salad.
      \[\square \square \square \square \square \square \square \square \square \square \square \]
      \[\square \square \square \square \square \]

5. Draw the model.

a) Jayden needs three times as many blueberries as raspberries to make jam. He needs 6 cups more blueberries than raspberries. He needs 12 cups of berries altogether.

\[
\begin{align*}
\text{blueberries:} & \hspace{1cm} \begin{array}{c}
\square \square \\
\square \square \\
\square \\
\square \\
\end{array} & \hspace{1cm} 12 \\
\text{raspberries:} & \hspace{1cm} \begin{array}{c}
\square \\
\square \\
\end{array} & \hspace{1cm} 6
\end{align*}
\]

b) Billy's building is 5 times as tall as Grace's. Billy's building is 20 floors taller than Grace's.

\[
\begin{align*}
\text{ Billy's building:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \\
\end{array} & \hspace{1cm} 20 \\
\text{ Grace's building:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array}
\end{align*}
\]

c) There are 3 times as many green apples as red apples. There are 20 apples altogether.

\[
\begin{align*}
\text{green apples:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \square \square \square \square \square \square \\
\square \square \square \square \square \square \square \square \\
\square \square \square \square \square \square \\
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\square \\
\square
\end{array} & \hspace{1cm} 20 \\
\text{red apples:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \square \square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array}
\end{align*}
\]

d) There are twice as many apricots as peaches. There are 32 more apricots than peaches.

\[
\begin{align*}
\text{ apricots:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \square \square \square \square \square \square \\
\square \square \square \square \square \square \square \square \\
\square \square \square \square \square \square \\
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\square \\
\square
\end{array} & \hspace{1cm} \text{32 more apricots than peaches.}
\end{align*}
\]

6. All the blocks are the same size. What is the size of each block?

a) \[
\begin{align*}
\text{blocks:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array} & \hspace{1cm} 20 \\
\text{total:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\end{array} & \hspace{1cm} 15
\end{align*}
\]

b) \[
\begin{align*}
\text{blocks:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array} & \hspace{1cm} \text{30}
\end{align*}
\]

c) \[
\begin{align*}
\text{blocks:} & \hspace{1cm} \begin{array}{c}
\square \square \square \\
\square \square \square \\
\square \\
\square \\
\end{array} & \hspace{1cm} \text{24}
\end{align*}
\]

d) \[
\begin{align*}
\text{blocks:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array} & \hspace{1cm} \text{30}
\end{align*}
\]

e) \[
\begin{align*}
\text{blocks:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array} & \hspace{1cm} 18
\end{align*}
\]

f) \[
\begin{align*}
\text{blocks:} & \hspace{1cm} \begin{array}{c}
\square \square \square \square \square \\
\square \square \square \square \\
\square \square \square \\
\square \square \\
\square \\
\end{array} & \hspace{1cm} 42
\end{align*}
\]
7. Draw the model. Find the size of one block in the model. Then solve the problem.

   a) Zack has four times as many stickers as Alex. Zack has 15 more stickers than Alex. How many stickers does each person have?

   _Zack’s stickers:_
   
   _Alex’s stickers:_

   Zack has ___ stickers and Alex has ___ stickers.

   b) Hanna is three times as old as Marcel. Hanna is 8 years older than Marcel. How old are Hanna and Marcel?

   Hanna is _____ years old and Marcel is _____ years old.

   c) There are five times as many green apples as red apples. There are 24 apples altogether. How many apples of each colour are there?

   There are _____ green apples and _____ red apples.

   d) A granola recipe calls for seven times as much oatmeal as nuts. Avril wants to make 400 grams of granola. How many grams of nuts and oatmeal does she need?

   Avril needs _____ grams of oatmeal and _____ grams of nuts.

   e) A rottweiler weighs five times as much as a Scottish terrier. The Scottish terrier weighs 36 kg less than the rottweiler. How much does each dog weigh?

   The Scottish terrier weighs _____ kg and the rottweiler weighs _____ kg.

   f) A pair of pants costs twice as much as a shirt. Fred paid $42 for a pair of pants and a shirt. How much did each item cost?

   **BONUS ▶** How much would Fred pay for two pairs of pants and three shirts?
ME4-9  Perimeter

The distance around the outside of a shape is the perimeter of the shape.
The edges of the squares in this figure measure 1 cm.
The perimeter of the figure is 6 cm.

1. Each edge is 1 cm long. Trace the perimeter of the figure. Find the perimeter in centimetres.
   a)  
   b)  
   c)  
   _____ cm  _____ cm  _____ cm

2. Each edge is 5 mm long. Count by 5s to find the perimeter in millimetres.
   a)  
   b)  
   c)  
   d)  
   _____ mm  _____ mm  _____ mm  _____ mm

3. Draw your own figure on the centimetre grid and find its perimeter. (Do not use diagonal lines.)

4. What unit would you use to measure the perimeter: cm, m, or km?
   a) a book: _____  
   b) a forest: _____  
   c) a basketball court: _____  
   d) a classroom: _____  
   e) a province: _____  
   f) a basketball hoop: _____
5. Why might you want to use millimetres to measure a perimeter?

6. Add to find the perimeter of the figure.
   a) 
   
   Perimeter = 
   
   b) 
   
   Perimeter = 
   
   c) 
   
   Perimeter = 
   
   d) 
   
   Perimeter = 

7. Measure the perimeter of the figure in millimetres. Use a ruler.
   a) 
   
   
   b) 
   
   
   c) 
   
   

8. Estimate the perimeter of the figure in centimetres. Then measure the actual perimeter with a ruler.
   a) 
   
   Estimated perimeter = 
   Actual perimeter = 
   
   b) 
   
   Estimated perimeter = 
   Actual perimeter = 
ME4-10 Calculating Perimeter

1. The pictures show the designs for two gardens. Find the perimeter of each garden by writing an addition equation.

![Garden Designs]

2. Write the number of boxes along the width and the length of the rectangle. Then write an addition equation and find the perimeter (in centimetres).

   a) Length = _____ cm

   Width = _____ cm

   Perimeter = ________________

   b) Length = _____ cm

   Width = _____ cm

   Perimeter = ________________

   c) Length = _____ cm

   Width = _____ cm

   Perimeter = ________________

   d) Width = _____ cm

   Length = _____ cm

   Perimeter = ________________

3. Write a rule for finding the perimeter of a rectangle from its length ($l$) and width ($w$).

   ________________________
A rectangle has perimeter 12 m. Each side is an exact number of metres long.

What are the dimensions of the rectangle? Let’s try different widths. Try 1 m first.

The widths add to 2 m.
The missing lengths are $12 \ m - 2 \ m = 10 \ m$ altogether. 
Each length is $10 \ m \div 2 = 5 \ m$.

<table>
<thead>
<tr>
<th>Width</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 m</td>
<td>?</td>
</tr>
</tbody>
</table>

4. a) The widths add to _____ m.
    b) The missing lengths are $12 \ m - _____ \ m = _____ \ m$ altogether.
    c) Each length is _____ m $\div 2 = _____ \ m$.

5. a) The widths add to _____ m.
    b) The missing lengths are ______________ altogether.
    c) Each length is ______________ m.

6. Find the missing sides. (The pictures are not drawn to scale.)

   a) Perimeter = 14 m
   
   6 m

   ____ m  ____ m 6 m

   b) Perimeter = 14 cm

   3 cm

   ____ cm  ____ cm 3 cm

   c) Perimeter = 10 m

   2 m

   ____ m 2 m

   d) Perimeter = 14 cm

   2 cm

   ____ cm 2 cm

   ____ cm

7. Find all rectangles with the given perimeter (with lengths and widths that are exact numbers of units).

<table>
<thead>
<tr>
<th>Perimeter = 6 units</th>
<th>Perimeter = 10 units</th>
<th>Perimeter = 16 units</th>
<th>Perimeter = 18 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>Length</td>
<td></td>
<td></td>
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<tr>
<td>-------</td>
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</tbody>
</table>

8. Write a rule for finding the perimeter of a square from its side length.
ME4-21 Digital Clocks

Digital clocks show hours and minutes separated by a colon. This clock shows that 25 minutes have passed since 3 o’clock. We say the time is 3:25 or 25 past (or after) 3.

We read 3:05 as “3 oh 5” or “5 past 3.”

We read 3:00 as “3 o’clock.”

1. Write the time in words and numbers.
   a) 08:17
      8:17
      17 past 8
   b) 03:42
      ____________________________
   c) 12:05
      ____________________________
   d) 14:23
      ____________________________
   e) 09:00
      ____________________________
   f) 23:11
      ____________________________
   g) 07:59
      ____________________________
   h) 16:16
      ____________________________
   i) 12:30
      ____________________________

2. Write the time the way it looks on a digital clock.
   a) 7 past 5
      ____________________________
   b) 25 after 4
      ____________________________
   c) 51 minutes past 11
      ____________________________
   d) 10 past 5
      ____________________________
   e) 20 after 11
      ____________________________
   f) 50 minutes after 7
      ____________________________

3. Write 20 past 2 in two ways.
   ____________________________
   ____________________________
When the number of minutes after the hour is more than 30, we can tell the time by saying how many minutes until the hour changes. Remember, there are 60 minutes in 1 hour.

Example: \(60 - 45 = 15\), so this clock shows 45 minutes after 10 or 15 minutes to 11.

4. How many minutes until the hour changes?
   a) 11:50 is _____ minutes to 12.  
   b) 1:40 is _____ minutes to 2.  
   c) 3:35 is _____ minutes to 4.  
   d) 5:56 is _____ minutes to 6.

5. Write the time in minutes to the next hour.
   a) \[08:45\]  
   b) \[03:42\]  
   c) \[10:55\]  
   d) \[07:33\]  
   e) \[09:58\]  
   f) \[01:40\]  

6. Write the time the way it looks on a digital clock.
   a) 7 minutes to 5  
   b) 25 minutes to 4  
   c) 10 minutes to 11  
   d) 2 minutes to 6  
   e) 20 minutes after 1  
   f) 5 minutes to 1  

7. Write the time in two ways.
   a) \[1:145\]  
   b) \[6:47\]  
   c) \[12:52\]  

**BONUS**
It is 8 o’clock.
The hour hand is on the 8.
The minute hand is on the 12.
The time is 8:00.

1. Write the time two ways.
   a)  
   b)  
   c)  
   d)  

   6 o’clock
   ____ : ____

2. Write the time in numbers.
   a) 7 o’clock
   b) 5 o’clock
   c) 11 o’clock
   d) 3 o’clock

3. Draw hands on the clock to show the time.
   a) 7:00
   b) 2 o’clock
   c) 3 o’clock
   d) 4:00
   e) midnight
   f) 13:00
   g) 16:00
   h) noon

BONUS

Measurement 4-23
It is half an hour after 8:00.
The hour hand is between 8 and 9.
The time is **half past 8**.

\[
60 \div 2 = 30, \text{ so the time is 8:30.}
\]

4. Write the time two ways.

   a) ![Clock](image1)

   **half past 6**

   ____ : ____

   b) ![Clock](image2)

   **half past ____**

   ____ : ____

   c) ![Clock](image3)

   **half past ____**

   ____ : ____

   d) ![Clock](image4)

   **half past ____**

   ____ : ____

5. Write the time in numbers.

   a) **half past 7**

   ________

   b) **half past 5**

   ________

   c) **half past 11**

   ________

   d) **half past 3**

   ________

6. Draw hands on the clock to show the time.

   a) ![Clock](image5)

   7:30

   b) ![Clock](image6)

   half past 2

   c) ![Clock](image7)

   30 minutes after 3

   d) ![Clock](image8)

   4:30

**BONUS**

   e) ![Clock](image9)

   17:30

   f) ![Clock](image10)

   half past noon

   g) ![Clock](image11)

   20:30

   h) ![Clock](image12)

   half hour to midnight
It is a quarter of an hour after 7:00 or **quarter past** 7.

\[60 \div 4 = 15\], so the time is 7:15.

7. Write the time in words and numbers. Use “quarter” in your answer.

a) 

b) 

c) 

8. Write the time in words and numbers. Use “quarter” in your answer.

a) 

b) 

c) 

It is a quarter of an hour before 7:00 or **quarter to** 7.

The time is 6:45.
9. Write the time in numbers.
   a) quarter past 7   b) quarter to 7   c) quarter past 11   d) quarter to 11
   e) quarter past 1   f) quarter to 4   g) quarter to 9   h) quarter past 5
   i) half past 9   j) quarter to 12   k) half past 2   l) quarter past 3

10. Draw hands on the clock to show the time.
   a)  
   b)  
   c)  
   d)  
   e)  
   f)  
   g)  
   h)  
   i)  
   j)  
   k)  
   l)  

11. Is the hour hand closer to 4 or to 5 ...
   a) at 4:15?  
   b) at 4:45?  
   BONUS at 4:30?
ME4-24  Telling Time to Five Minutes

What time is it?

**Step 1:** Look at the hour hand. It points between 4 and 5. The hour is 4.

**Step 2:** Look at the minute hand. It points at 2. Skip count by 5s or multiply by 5 to find the minutes: 5, 10, or $2 \times 5 = 10$.

The time is 4:10.

1. **What time is it?**
   
   a) ![Clock](image1)
   
   b) ![Clock](image2)
   
   c) ![Clock](image3)
   
   d) ![Clock](image4)
   
   e) ![Clock](image5)
   
   f) ![Clock](image6)

   __1__ : __40__

2. **Write the time on the digital clock.**
   
   a) ![Digital Clock](image7)
   
   b) ![Digital Clock](image8)
   
   c) ![Digital Clock](image9)
   
   d) ![Digital Clock](image10)
   
   e) ![Digital Clock](image11)
   
   f) ![Digital Clock](image12)

   __0__ __6__ : __5__ __5__
3. Write the time two ways.

   a) 
   
   6:45
   
   quarter to 7

   b) 
   
   c) 

   d) 

   e) 

   f) 

4. Draw hands on the clock to show the time.

   a) 
   
   7:10

   b) 
   
   9:40

   c) 
   
   11:05

   d) 
   
   2:45

   e) 
   
   3:35

   f) 

   g) 

   h) 

5. Write the time in Question 4, part f) as many ways as you can.