**OA3-10 Patterns in Addition Tables**

The parts of an addition sentence have special names.

\[ 4 + 5 = 9 \]

- **Addend**
- **Addend**
- **Sum**

1. Circle the addends. Draw a box around the sum.

   a) \(15 = \square + \square\)  
   b) \(5 + 7 = 12\)  
   c) \(17 + 3 = 20\)  
   d) \(8 = 5 + 3\)  
   e) \(2 + 57 = 59\)  
   f) \(4 + 2 + 1 = 7\)  
   g) \(25 = 10 + 15\)  
   h) \(47 = 18 + 29\)  
   i) \(32 + 30 = 62\)  
   j) \(15 + 2 = 17\)  
   k) \(100 = 60 + 40\)  
   l) \(64 = 32 + 15 + 17\)

An **addition table** shows the sum of two addends.

<table>
<thead>
<tr>
<th>+</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

2. Complete the addition table.

   a) \[+\]  
      \[
      \begin{array}{cccc}
      & 0 & 1 & 2 \\
      0 & 0 & 1 \\
      1 & 2 & & \\
      3 & 5 & & \\
      \end{array}
      \]
      \[3 + 2 = 5\]

   b) \[+\]  
      \[
      \begin{array}{cccc}
      & 4 & 5 & 6 & 7 & 8 \\
      4 & 8 & 9 & & & \\
      5 & & & & & \\
      6 & & & & 12 & \\
      7 & & & 13 & & \\
      8 & & & & & \\
      \end{array}
      \]
3. Circle the addends in the addition table. Draw a box around the sum.

<table>
<thead>
<tr>
<th>+</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

a) $2 + 3 = 5$

b) $1 + 2 = 3$

c) $1 + 3 = 4$

d) $0 + 4 = 4$

4. a) Shade the row for addend 3.

<table>
<thead>
<tr>
<th>+</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Describe the pattern.
Start at ____________
and add ____________.

b) Shade the column for addend 2.

<table>
<thead>
<tr>
<th>+</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Describe the pattern.
Start at ____________
and add ____________.
5. Draw a box around the sum for $3 + 4$.
   Draw a box around the sum for $4 + 3$.
   a) What do you notice?
      ____________________________________________

   b) What property of addition does this show?
      ____________________________________________

6. + 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

   a) Describe the pattern in the light shaded squares.
      Start at ________, add ________.

   b) Describe the pattern in the dark shaded squares.
      ____________________________________________

   c) Shade a pattern of your own. Describe the pattern you shaded.
      ____________________________________________
7. a) Alex has shaded all squares for the sum 7 in the table above. Fill in the blanks to complete the addition sentences.

\[
\begin{align*}
0 + 7 & = 7 \\
1 + 6 & = 7 \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\_ & + \_ & = \\
\end{align*}
\]

b) Shade the column for addend zero. Then find the sums.

\[2 + 0 = \_ \quad 5 + 0 = \_ \quad 7 + 0 = \_ \quad 8 + 0 = \_
\]

c) When you add zero to a number, what is the result?
OA3-II  Mental Math

1. Fill in the missing numbers.
   a) $7 = \underline{1} + \underline{2} + \underline{3}$
   b) $6 = \underline{1} + \underline{2} + \underline{3}$

2. Fill in the missing numbers.
   $10 = \underline{1} + \underline{2} + \underline{3} + \underline{4} + \underline{5}$

3. Circle the pair that adds to 10.
   a) 2  7  8
   b) 3  7  4
   c) 5  3  5
   d) 6  4  5
   e) 1  8  9

4. Circle the pair that adds to 10. Write the number that is left over in the box.
   a) $4 + 5 + \underline{6} = 10 + \underline{5}$
   b) $7 + 3 + 4 = 10 + \underline{1}$
   c) $8 + 3 + 2 = 10 + \underline{1}$
   d) $6 + 9 + 4 = 10 + \underline{1}$
   e) $9 + 1 + 7 = 10 + \underline{1}$
   f) $5 + 8 + 2 = 10 + \underline{1}$
   g) $5 + 3 + 5 = 10 + \underline{1}$
   h) $3 + 9 + 1 = 10 + \underline{1}$
   i) $3 + 7 + 4 = 10 + \underline{1}$
   j) $6 + 5 + 4 = 10 + \underline{1}$
   k) $5 + 7 + 5 = 10 + \underline{1}$
   l) $5 + 7 + 3 = 10 + \underline{1}$
   m) $3 + 7 + 8 = 10 + \underline{1}$
   n) $4 + 8 + 6 = 10 + \underline{1}$
5. Add mentally.

a) $10 + 5 = \underline{\hspace{1cm}}$

c) $40 + 8 = \underline{\hspace{1cm}}$

e) $60 + 1 = \underline{\hspace{1cm}}$

g) $40 + 4 = \underline{\hspace{1cm}}$

i) $90 + 9 = \underline{\hspace{1cm}}$

k) $460 + 7 = \underline{\hspace{1cm}}$

m) $800 + 3 = \underline{\hspace{1cm}}$

BONUS

o) $400 + 12 = \underline{\hspace{1cm}}$

p) $300 + 25 = \underline{\hspace{1cm}}$

6. Fill in the boxes.

a) $8 + 6 = 8 + \underline{2} + \underline{4}$

these make 10 left over

b) $9 + 5 = 9 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

these make 10 left over

c) $6 + 5 = 6 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

these make 10 left over

d) $5 + 7 = 5 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

these make 10 left over

e) $9 + 4 = 9 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

f) $8 + 8 = 8 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

g) $7 + 6 = 7 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

h) $9 + 6 = 9 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

i) $6 + 6 = 6 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

j) $8 + 7 = 8 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

k) $7 + 8 = 7 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

l) $5 + 8 = 5 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

m) $6 + 9 = 6 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

n) $8 + 3 = 8 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$
7. Add by following the steps.
   a) $7 + 5 = \boxed{7} + \boxed{3} + \boxed{2} = \underline{10} + 2 = 12$
      these make 10 left over
   
   b) $26 + 5 = \boxed{26} + \boxed{} + \boxed{} = \underline{30}$
      these make 30 left over
   
   c) $78 + 6 = \boxed{78} + \boxed{} + \boxed{} = \underline{80}$
      these make 80 left over
   
   d) $45 + 8 = \boxed{45} + \boxed{} + \boxed{} = \underline{50}$
      these make 50 left over
   
   e) $37 + 8 = \boxed{37} + \boxed{} + \boxed{} = \underline{45}$
      these make ___ left over
   
   f) $68 + 7 = \boxed{68} + \boxed{} + \boxed{} = \underline{75}$
      these make ___ left over

8. Find the answers mentally.
   a) Roy has 38 dollars.  
      His parents give him 7 dollars.  
      How much money does Roy have?  
   b) Don has 26 stickers.  
      Emma has 7 stickers.  
      How many do they have altogether?

9. Explain how you would add 37 + 5 mentally.

10. Add 48 + 5 mentally. Then use your answer to add 480 + 50 mentally.
OA3-12 Parts and Totals

I. Shade boxes to show the number of marbles. Then find the total and the difference.

a) 5 green marbles
   3 blue marbles
   difference: ___2 marbles____
   total: ___8 marbles____

b) 4 green marbles
   6 blue marbles
   difference: _____________
   total: _______________

c) 8 green marbles
   4 blue marbles
   difference: _____________
   total: _______________

d) 9 green marbles
   4 blue marbles
   difference: _____________
   total: _______________

e) 3 green marbles
   8 blue marbles
   difference: _____________
   total: _______________
4 green marbles
3 more blue marbles than green

To draw the diagram:

**Step 1:** Shade the amount you know.
**Step 2:** Find the other amount.

2. Draw the diagram. Then fill in the blanks.

   a) 5 green marbles
   2 more blue marbles than green marbles
   
   green
   blue

   b) 4 blue marbles
   3 more green marbles than blue marbles
   
   green
   blue

Sometimes you know the larger amount.

   6 green marbles
   4 more green marbles than blue marbles
   
   green
   blue

3. Draw the diagram. Then fill in the blanks.

   7 green marbles
   3 more green marbles than blue marbles
   
   green
   blue
4. Draw the diagram. Then fill in the blanks.

a) 9 green marbles
   5 blue marbles

   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |

   difference: ____________
   total: ____________

b) 6 marbles altogether
   2 green marbles

   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |

   difference: ____________
   total: ____________

c) 3 green marbles
   4 more blue marbles than green marbles

   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |

   difference: ____________
   total: ____________

d) 8 green marbles
   3 fewer blue marbles than green marbles

   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |

   difference: ____________
   total: ____________

e) 9 blue marbles
   15 marbles altogether

   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |
   |   |   |   |   |

   difference: ____________
   total: ____________
### OA3-I3 More Parts and Totals

I. Fill in the table.

<table>
<thead>
<tr>
<th>Green Marbles</th>
<th>Blue Marbles</th>
<th>Total</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>b)</td>
<td>2</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>f)</td>
<td>3</td>
<td>1</td>
<td>1 more blue marble than green</td>
</tr>
<tr>
<td>g)</td>
<td>2</td>
<td></td>
<td>1 more green marble than blue</td>
</tr>
<tr>
<td>h)</td>
<td>4</td>
<td></td>
<td>1 more blue marble than green</td>
</tr>
<tr>
<td>i)</td>
<td>7</td>
<td>2</td>
<td>5 more green marbles than blue</td>
</tr>
<tr>
<td>j)</td>
<td>5</td>
<td></td>
<td>4 more green marbles than blue</td>
</tr>
<tr>
<td>k)</td>
<td>12</td>
<td></td>
<td>6 more blue marbles than green</td>
</tr>
<tr>
<td>l)</td>
<td>12</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>m)</td>
<td>35</td>
<td></td>
<td>20 more green marbles than blue</td>
</tr>
</tbody>
</table>
2. Write + or −.

a) Number of green marbles \[\quad\] Number of blue marbles = Total number of marbles

b) Number of green marbles \[\quad\] Number of blue marbles = How many more green marbles

c) Number of green apples \[\quad\] Number of red apples = Total number of apples

d) Total number of apples \[\quad\] Number of red apples = Number of green apples

e) Number of green grapes \[\quad\] Number of purple grapes = How many more green grapes

f) Number of yellow beans \[\quad\] Number of green beans = How many more yellow beans

g) Total number of beans \[\quad\] Number of yellow beans = Number of green beans

h) Number of red marbles \[\quad\] Number of blue marbles = How many more red marbles
3. Fill in the table. Circle the number in the table that answers the question.

<table>
<thead>
<tr>
<th>Red</th>
<th>Green</th>
<th>Total</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

a) Kate has 3 green fish and 4 red fish. How many fish does she have altogether?

b) Bill has 4 green fish and 6 red fish. How many fish does he have altogether?

c) Mary has 8 green fish and 2 more green fish than red fish. How many fish does she have?

d) Peter has 19 fish. He has 15 green fish. How many red fish does he have?

e) Hanna has 8 green fish and 3 fewer red fish than green fish. How many fish does she have?

f) Ken has 22 red fish and 33 green fish. How many more green fish does he have?

4. Alice has 3 science books and 4 art books. How many books does she have?

5. Marco has 5 pets. 3 are cats. The rest are dogs. How many dogs does he have?

6. Ed has 25 red apples. He has 14 more green apples than red apples. How many apples does he have?

7. There are 25 students in a class. 16 of the students are girls.
   a) How many students are boys?
   b) How many more girls are there than boys?
1. Micky has 7 dollars and Amy has 15 dollars. How much money do they have altogether?

2. Anne is 12 years old. Her sister is 23. How much older is her sister?

3. A library has 520 books. 150 were borrowed. How many books are left?

4. 52 students went on a school trip. 27 of the students were girls. How many were boys?

5. Jayden paid 75 cents for a goldfish that costs 62 cents. How much change did he get back?

6. Clara’s mother is 47. Her aunt is 33. How much older is Clara’s mother than Clara’s aunt?

7. A pine tree is 53 feet tall. An oak tree is 75 feet tall. How much taller is the oak tree than the pine tree?

8. Ethan sold 27 raffle tickets altogether on Wednesday and Thursday. On Thursday, he sold 13 tickets. How many tickets did he sell on Wednesday?

9. Sara had 35 colored pencils. She lost 4. How many does she have left?
10. The biggest woolly mammoth tusk ever found weighs 208 pounds. How much would 2 tusks of this size weigh?

11. Beth biked 15 miles on Monday and 12 miles on Tuesday.
   a) How much farther did she bike on Monday than on Tuesday?
   b) How far did she bike altogether?

12. Ravi hiked 9 miles on Tuesday. He hiked 4 more miles on Wednesday than on Tuesday.
   a) How far did he hike on Wednesday?
   b) How far did he hike altogether?

13. Zack has 42 cents. Nina has 15 cents more than Zack. How much money do they have altogether?

14. Josh read two books by Roald Dahl. The BFG is 208 pages long. Charlie and the Chocolate Factory is 53 pages shorter than The BFG. How many pages did he read altogether?

15. Marta bought 29 baseball cards and 16 football cards. She gave away 2 baseball cards and 3 football cards. How many cards does she have left?