

# Use Addition and Subtraction Strategies

## A Closer Look at the Digits Game



### Self-Check: Questions 1–4

1. Romesh and Jacob are playing the digits game. They need to find the largest sum. Seven numbers were placed on each board.
  - A. Use an estimation strategy to decide who found the largest sum. Show your strategy.

Romesh

$$\begin{array}{r}
 \boxed{7} \boxed{8} \boxed{4} \boxed{1} \\
 + \quad \boxed{6} \boxed{5} \boxed{3} \\
 \hline
 \end{array}$$

Estimation Strategy

Jacob

$$\begin{array}{r}
 \boxed{7} \boxed{4} \boxed{5} \boxed{3} \\
 + \quad \boxed{6} \boxed{8} \boxed{1} \\
 \hline
 \end{array}$$

Estimation Strategy

**B.** Find the solution for each boy's game board. Use a different strategy for each problem.

Problem	My Strategy
<p style="text-align: center;">Romesh</p> $\begin{array}{r} \boxed{7} \boxed{8} \boxed{4} \boxed{1} \\ + \quad \boxed{6} \boxed{5} \boxed{3} \\ \hline \end{array}$	
<p style="text-align: center;">Jacob</p> $\begin{array}{r} \boxed{7} \boxed{4} \boxed{5} \boxed{3} \\ + \quad \boxed{6} \boxed{8} \boxed{1} \\ \hline \end{array}$	

**2.** Shannon is playing for the smallest difference. Here is her game board. Find the difference. Then use estimation to decide if your answer is reasonable. Explain your estimation strategy.

$$\begin{array}{r} \boxed{2} \boxed{5} \boxed{0} \boxed{3} \\ - \boxed{1} \boxed{4} \boxed{9} \boxed{8} \\ \hline \end{array}$$

Estimation Strategy

**3.** Jessie and Grace played a game for the largest difference.

**A.** Look at Jessie's game board.  
Do you agree with Jessie's solution?  
Why or why not?

Jessie's Board

$$\begin{array}{r} \boxed{8} \boxed{1} \boxed{4} \\ - \boxed{6} \boxed{3} \boxed{5} \\ \hline 2 \quad 4 \quad 9 \end{array}$$

**B.** Look at Grace’s game board. Explain how Grace found her solution.

Grace’s Board

	5	10	13
	<del>6</del>	<del>7</del>	<del>8</del>
-	4	8	5
	1	2	8

**C.** Who found the largest difference, Jessie or Grace?

**4.** Jerome and Maya played a game for the smallest difference. Finish the solutions started by Jerome and Maya. Then use an estimation strategy to decide if your answers are reasonable. Circle the winner.

Jerome

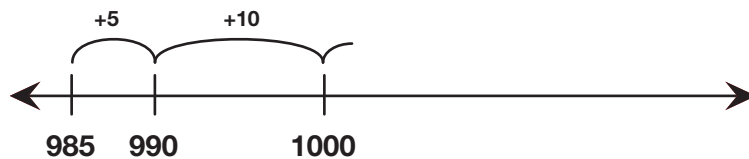
		10		
	1	<del>5</del>	<del>0</del>	8
-		3	9	2
				6

Estimation Strategy

Maya




	1	0	2	3
-		9	8	5

Estimation Strategy



1023 - 985 =

**Use Self-Check: Questions 1–4 and the Workshop Menu: A Closer Look at the Digits Game to choose practice for using strategies in addition and subtraction.**

Workshop Menu: A Closer Look at the Digits Game			
Can I Do This?	▲ Working On It!  I could use some extra help.	● Getting It!  I just need some more practice.	■ Got It!  I'm ready for a challenge.
Use place value concepts to make trades in addition and subtraction.	Questions 5,7B, 13A	Questions 5, 7B, 13A	Question 6A, 8, 13A
Use more than one strategy to add and subtract multidigit numbers.	Questions 9–10, 13B	Questions 11, 13B	Questions 6B–C, 13B
Estimate sums and differences.	Questions 7A, 10	Questions 7A, 12	Question 12

**5.** John was playing for the largest sum. Look at his game board and solution.

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 4 & 7 & 2 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 3 & 5 & 8 \\ \hline \end{array} \\
 \hline
 7 & 0 & 0 \\
 1 & 2 & 0 \\
 + & 1 & 0 \\
 \hline
 8 & 3 & 0
 \end{array}$$

- A.** Explain how John got 120 in his solution.
- B.** Using the same digits John used, arrange the digits to find a larger sum. Use John's strategy to find the sum.

6.    **A.** John was playing for the largest sum. Some of the digits are missing from his solution. Find the missing digits.

$$\begin{array}{r}
 \boxed{4} \boxed{\phantom{0}} \boxed{2} \\
 + \boxed{\phantom{0}} \boxed{5} \boxed{\phantom{0}} \\
 \hline
 7 \phantom{0} \phantom{0} \\
 1 \phantom{2} \phantom{0} \\
 + \phantom{1} \phantom{2} \phantom{0} \\
 \hline
 8 \phantom{3} \phantom{0}
 \end{array}$$

- B.** Use John's six digits to make a problem with the largest possible sum. Use any strategy to solve the problem.


- C.** Use John's six digits to make a problem with the smallest possible sum. Use any strategy to solve the problem.

7. Ana is playing for the smallest difference. Look at her game board and solution.


$$\begin{array}{r}
 \boxed{7} \boxed{1} \boxed{3} \\
 - \phantom{0} \boxed{8} \boxed{9} \\
 \hline
 7 \phantom{9} \phantom{6} \\
 \phantom{7} \phantom{9} \phantom{6}
 \end{array}$$

- A.** Use estimation to decide if Ana's solution is reasonable. Explain your thinking.


- B.** Show or tell Ana how to find the correct solution for her game board.

-  **8.** Luis is playing for the smallest difference. He left some numbers out on his game board and solution. Find the missing numbers. Explain your thinking.

$$\begin{array}{r}
 \boxed{2} \ \boxed{\phantom{0}} \ \boxed{\phantom{0}} \ \boxed{4} \\
 - \ \boxed{\phantom{0}} \ \boxed{3} \ \boxed{9} \ \boxed{8} \\
 \hline
 \phantom{0} \ \mathbf{6} \ \mathbf{5} \ \mathbf{6}
 \end{array}$$

-  **9.** Sam placed 6 digits on his game board. Explain how Sam can use a mental math strategy to find the solution.

$$\begin{array}{r}
 \boxed{5} \ \boxed{0} \ \boxed{2} \\
 + \ \boxed{3} \ \boxed{4} \ \boxed{9} \\
 \hline
 \phantom{0} \ \phantom{0} \ \phantom{0}
 \end{array}$$

-  **10.** Nisha and Roberto are playing a game for the largest sum. Finish the solution strategies started by Nisha and Roberto. Estimate to show the solutions are reasonable. Circle the winner.

Nisha's Board

$$\begin{array}{r}
 \boxed{4} \ \boxed{6} \ \boxed{3} \ \boxed{0} \\
 + \ \boxed{8} \ \boxed{5} \ \boxed{9} \ \boxed{1} \\
 \hline
 \phantom{0} \ \phantom{0} \ \phantom{0} \ \phantom{0}
 \end{array}$$

Nisha's Strategy

$$\begin{array}{r}
 4630 \\
 + 8591 \\
 \hline
 12000 \\
 \text{cloud} \\
 120 \\
 + \phantom{0} \ \mathbf{1} \\
 \hline
 \text{cloud}
 \end{array}$$

Estimation

Roberto's Board

$$\begin{array}{r}
 \boxed{9} \ \boxed{3} \ \boxed{4} \ \boxed{1} \\
 + \ \boxed{5} \ \boxed{8} \ \boxed{6} \ \boxed{0} \\
 \hline
 \phantom{0} \ \phantom{0} \ \phantom{0} \ \phantom{0}
 \end{array}$$

Roberto's Strategy

$$\begin{array}{r}
 \textcircled{1} \ 1 \\
 9341 \\
 + 5860 \\
 \hline
 \text{cloud} \ 01
 \end{array}$$

Estimation

- 11.** Emily placed 7 digits on her game board. Find the solution for Emily’s game board using two different strategies.

Game Board	One Strategy	Another Strategy
$  \begin{array}{r}  \boxed{2} \boxed{6} \boxed{4} \boxed{3} \\  + \quad \boxed{9} \boxed{5} \boxed{8} \\  \hline  \end{array}  $		

- 12.** Rosa and Suzanne are playing for the smallest difference.

**A.** Use estimation to decide who will win this round. Circle the winner.

Rosa’s Board

$$\begin{array}{r}
 \boxed{2} \boxed{4} \boxed{9} \boxed{3} \\
 - \quad \boxed{6} \boxed{1} \boxed{7} \\
 \hline
 \end{array}$$

Suzanne’s Board

$$\begin{array}{r}
 \boxed{2} \boxed{6} \boxed{9} \boxed{4} \\
 - \quad \boxed{7} \boxed{3} \boxed{1} \\
 \hline
 \end{array}$$

**B.** Explain your reasoning.



### Check-In: Question 13

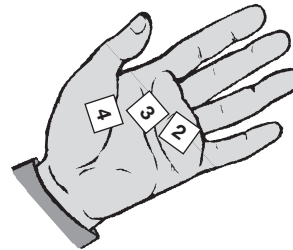
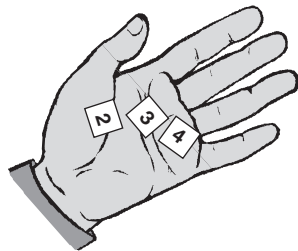
- 13.** Tanya and Jackie are playing a version of the Digits Game. They are making subtraction problems using cards numbered 1 to 5. The player whose subtraction problem gives the largest difference wins the game. Look at where each girl placed the first two of her cards.

Tanya

$$\begin{array}{|c|c|c|} \hline \square & 1 & \square \\ \hline - & 5 & \square \\ \hline \end{array}$$

Jackie

$$\begin{array}{|c|c|c|} \hline \square & \square & \square \\ \hline - & 5 & 1 \\ \hline \end{array}$$



- A.** Without placing the missing numbers decide who will win the game. Explain how you know this person will win.
- B.** Look at Tanya's and Jackie's boards. Write the subtraction problem that will win the game. Show how to solve it in two different ways.