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Adding with Base-Ten Pieces

Nikia and Maruta both work at the TIMS Candy Company. Nikia made 196 Chocos. Maruta made 232 Chocos. They used base-ten pieces to figure out how much candy they made together. They recorded their work with base-ten shorthand and a recording sheet.

1000s	100s	10s	1s
	1	9	6
+	2	3	2
	3	12	8
	4	2	8

1. Another time Nikia made 237 Chocos and Maruta made 155. Find how much they made altogether. Solve the problem using base-ten shorthand and record your work on the recording sheet. Make sure you use the Fewest Pieces Rule.

1000s	100s	10s	1s
+			

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Solve the problems using base-ten shorthand. Then record your work on the recording sheet.

2. $69 + 23 + 18$

1000s	100s	10s	1s
+			

3. $324 + 194$

1000s	100s	10s	1s
+			

4. $2607 + 748$

1000s	100s	10s	1s
+			

5. $1308 + 4196$

1000s	100s	10s	1s
+			

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Adding with Base-Ten Pieces (SAB pp. 191–192)

Questions 1–5

1.

1000s	100s	10s	1s
	2	3	7
+	1	5	5
	3	8	12
	3	9	2

2.

1000s	100s	10s	1s
		6	9
+		1	8
		7	17
	1	7	0

3.

1000s	100s	10s	1s
	3	2	4
+	1	9	4
	4	11	8
	5	1	8

4.

1000s	100s	10s	1s
2	6	0	7
+	7	4	8
	13	4	15
	3	3	5

5.

1000s	100s	10s	1s
1	3	0	8
+	4	1	9
	7	1	17
	5	1	0

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Problem Solving (SAB pp. 195–196)
Questions 1–5

1. Romesh Second Method

$\begin{array}{ c c } \hline 6 & 4 \\ \hline \end{array} = 60 + 4$ $+ \begin{array}{ c c } \hline 8 & 7 \\ \hline \end{array} = 80 + 7$ <hr style="width: 80%; margin: 0 auto;"/> $140 + 11 = 151$	$\begin{array}{r} 1 \\ 64 \\ + 87 \\ \hline 151 \end{array}$
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Jason

$\begin{array}{ c c } \hline 7 & 4 \\ \hline \end{array} = 70 + 4$ $+ \begin{array}{ c c } \hline 8 & 6 \\ \hline \end{array} = 80 + 6$ <hr style="width: 80%; margin: 0 auto;"/> $150 + 10 = 160$	$\begin{array}{r} 74 \\ + 86 \\ \hline 150 \\ + 10 \\ \hline 160 \end{array}$
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2. Kathy Estimation Strategy

$\begin{array}{ c c c } \hline 8 & 1 & 4 \\ \hline \end{array}$ $+ \begin{array}{ c c c } \hline 6 & 2 & 3 \\ \hline \end{array}$ <hr style="width: 80%; margin: 0 auto;"/> $1 \quad 4 \quad 3 \quad 7$	$\begin{array}{r} 800 \\ + 600 \\ \hline 1400 \end{array}$ <p>1437 is a reasonable answer.</p>
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Sara

$\begin{array}{ c c c } \hline 1 & 6 & 3 \\ \hline \end{array}$ $+ \begin{array}{ c c c } \hline 8 & 4 & 2 \\ \hline \end{array}$ <hr style="width: 80%; margin: 0 auto;"/> $1 \quad 0 \quad 0 \quad 5$	$\begin{array}{r} 200 \\ + 800 \\ \hline 1000 \end{array}$ <p>1005 is a reasonable answer.</p>
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3. Kathy won. Kathy had the two largest numbers in the hundreds place. $800 + 600 = 1400$.

4.* See discussion in the lesson.

5. A. If I add the hundreds ($900 + 700$) and the tens ($60 + 50$) I get $1600 + 110 = 1710$. His answer of 1616 is not reasonable.

B. $961 + 754$ does not equal 1616. He added 11 ones instead of 11 tens.

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*Answers and/or discussion are included in the lesson.

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Problem Solving

Solve the problems. Use the *Addition Strategies Menu* in the *Student Guide Reference* section.

1. Romesh and Jason are playing the Digits Game. After four cards, their boards are below. Find each boy's sum using two different methods.

<p>Romesh</p> $\begin{array}{ c c } \hline 6 & 4 \\ \hline \end{array}$ $+ \begin{array}{ c c } \hline 8 & 7 \\ \hline \end{array}$	<p>Second Method</p>
<p>Jason</p> $\begin{array}{ c c } \hline 7 & 4 \\ \hline \end{array}$ $+ \begin{array}{ c c } \hline 8 & 6 \\ \hline \end{array}$	

2. Kathy and Sara played a game for the largest number. Their boards are below. Find each sum. Explain a strategy for deciding if your answers are reasonable.

<p>Kathy</p> $\begin{array}{ c c c } \hline 8 & 1 & 4 \\ \hline \end{array}$ $+ \begin{array}{ c c c } \hline 6 & 2 & 3 \\ \hline \end{array}$	<p>Estimation Strategy</p>
<p>Sara</p> $\begin{array}{ c c c } \hline 1 & 6 & 3 \\ \hline \end{array}$ $+ \begin{array}{ c c c } \hline 8 & 4 & 2 \\ \hline \end{array}$	

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3. Who won Kathy and Sara's game? Show how you decided who had the largest number.

4. Miguel's game board looks like the one below. He is trying to find the largest sum. The next card is a 5. Where should he put the 5? Explain your thinking.

$\begin{array}{ c c c } \hline & 6 & 1 \\ \hline \end{array}$ $+ \begin{array}{ c c c } \hline 7 & & 4 \\ \hline \end{array}$	
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✓ **Check-In: Question 5**

5. Miguel's completed game board is to the right. He used the all-partials method to find the sum.

	$\begin{array}{ c c c } \hline 9 & 6 & 1 \\ \hline \end{array}$ $+ \begin{array}{ c c c } \hline 7 & 5 & 4 \\ \hline \end{array}$ <hr style="width: 80%; margin: 0 auto;"/> $\begin{array}{r} 1 \quad 6 \quad 0 \quad 0 \\ 1 \quad 1 \\ \hline 1 \quad 6 \quad 1 \quad 6 \end{array}$
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A. Explain an estimation strategy for checking if his answer is reasonable.

B. Check Miguel's calculations. Do you agree with his solution? Why or why not?

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Adding the Parts

Homework

Solve the problems using any method. Use the *Addition Strategies Menu* in the Reference section of the *Student Guide*. Check to see if your answer is reasonable.

Johnny solved this problem using the All-Partials Method:

$$\begin{array}{r} 574 \\ + 859 \\ \hline 1300 \\ 120 \\ + 13 \\ \hline 1433 \end{array}$$

Suzanne solved it using Expanded Form:

$$\begin{array}{l} 574 = 500 + 70 + 4 \\ + 859 = 800 + 50 + 9 \\ \hline 1300 + 120 + 13 = 1433 \end{array}$$

A. $\begin{array}{r} 148 \\ + 754 \\ \hline \end{array}$ B. $\begin{array}{r} 652 \\ + 283 \\ \hline \end{array}$

C. $\begin{array}{r} 143 \\ + 629 \\ \hline \end{array}$ D. $\begin{array}{r} 162 \\ + 575 \\ \hline \end{array}$

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E. $\begin{array}{r} 153 \\ + 479 \\ \hline \end{array}$ F. $\begin{array}{r} 342 \\ + 568 \\ \hline \end{array}$

G. $\begin{array}{r} 159 \\ + 456 \\ \hline \end{array}$ H. $\begin{array}{r} 678 \\ + 543 \\ \hline \end{array}$

I. Show how Question A can be solved using a mental math strategy.

J. Explain an estimation strategy that shows your answer to Question H is reasonable.

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**Adding the Parts (SAB pp. 197–198)
Homework
Questions A–J**

Explanations will vary.

A. $\begin{array}{r} 148 \\ + 754 \\ \hline 12 \\ 90 \\ + 800 \\ \hline 902 \end{array}$

B. $\begin{array}{l} 652 = 600 + 50 + 2 \\ + 283 = 200 + 80 + 3 \\ \hline 800 + 130 + 5 = 935 \end{array}$

C. $\begin{array}{r} 143 \\ + 629 \\ \hline 772 \end{array}$

D. $\begin{array}{r} 162 \\ + 575 \\ \hline 737 \end{array}$

E. $\begin{array}{r} 153 \\ + 479 \\ \hline 632 \end{array}$

F. $\begin{array}{r} 342 \\ + 568 \\ \hline 10 \\ 100 \\ + 800 \\ \hline 910 \end{array}$

G. $\begin{array}{l} 159 = 100 + 50 + 9 \\ + 456 = 400 + 50 + 6 \\ \hline 500 + 100 + 15 = 615 \end{array}$

H. $\begin{array}{r} 678 \\ + 543 \\ \hline 1221 \end{array}$

I. Explanations will vary. Think of $150 + 750 = 900$. $900 + 2 = 902$

J. Explanations will vary. 678 is close to 700. 543 is close to 500. $700 + 500$ is 1200, so 1221 is reasonable.

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