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is about $900,000,000 - 500,000,000 = 400,000,000$, so they are about the same. If you round each number to the nearest ten thousand the distance between Earth and Jupiter is $480,000,000 - 90,000,000 = 390,000,000$ and the distance between Jupiter and Saturn is $890,000,000 - 480,000,000 = 410,000,000$. These two distances are still close as both are about $400,000,000$.

Student Activity Book

Use Addition and Subtraction Strategies (SAB. pp. 151–158)
Questions 1–13

1. **A.** Possible response: I used convenient numbers $7840 + 650 = 8490$ for Romesh and $7450 + 680 = 8130$ for Jacob. Romesh found the largest sum.
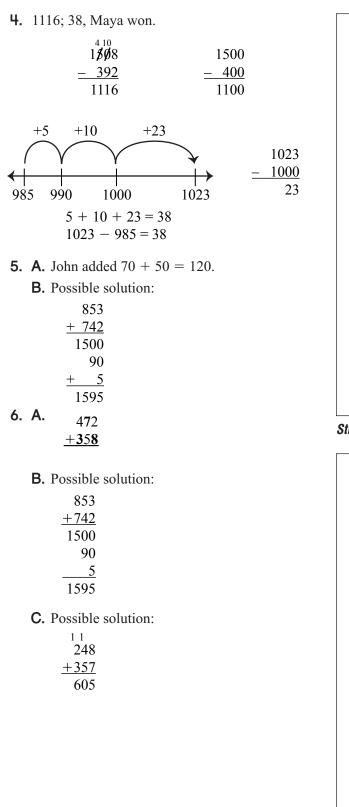
B. Possible strategy for Romesh:

$$
\begin{array}{r}
{}^{1} \\
7841 \\
+\ 653 \\
\hline
8494
\end{array}
$$

Possible strategy for Jacob:

$$
\begin{array}{r}
7453 \\
+\ 681 \\
\hline
7000 \\
1000 \\
130 \\
4 \\
\hline
8134
\end{array}
$$

2. I used mental math. I added 2 to 1498 to make it 1500 and then I added 1000 to get to 2500 and then another 3 to get to 2503. $2 + 1000 + 3 = 1005$. This is reasonable because $2500 - 1500$ is 1000 and that is very close to 1005.

3. **A.** Possible response: I do not agree with Jessie because she added the ones and tens and then subtracted the 100s. The answer will be 179.

B. Since Grace could not subtract 5 from 3 she regrouped by taking the ten to make 13 ones then she subtracted $13 - 5 = 8$. Then Grace could not subtract 8 tens from 0 tens so she regrouped taking 10 ten or 100 from the 600 leaving 500. That left $10 - 8$ in the tens column and $5 - 4$ in the hundreds column.

C. Jessie found the largest difference.

4. 1116; 38, Maya won.

$$\begin{array}{r} {\scriptstyle 4\ 10} \\ 1\cancel{5}\cancel{0}8 \\ -\ \ 392 \\ \hline 1116 \end{array}$$

$$\begin{array}{r} 1500 \\ -\ \ 400 \\ \hline 1100 \end{array}$$

+5   +10   +23

985   990   1000   1023

$$\begin{array}{r} 1023 \\ -\ 1000 \\ \hline 23 \end{array}$$

$5 + 10 + 23 = 38$

$1023 - 985 = 38$

5. A. John added $70 + 50 = 120$.

 B. Possible solution:

$$\begin{array}{r} 853 \\ +\ \ 742 \\ \hline 1500 \\ 90 \\ +\ \ \ \ 5 \\ \hline 1595 \end{array}$$

6. A.
$$\begin{array}{r} 472 \\ +\mathbf{358} \\ \hline \end{array}$$

 B. Possible solution:

$$\begin{array}{r} 853 \\ +742 \\ \hline 1500 \\ 90 \\ \underline{\ \ \ 5} \\ 1595 \end{array}$$

 C. Possible solution:

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 248 \\ +357 \\ \hline 605 \end{array}$$

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Name _____ Date _____

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

```
    4 □ 2
  + □ 5 □
  -------
    7 0 0
    1 2 0
  +   1 0
  -------
    8 3 0
```

■**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.

```
    7 1 3
  −   8 9
  -------
    7 9 6
```

★●**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.

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Name _____ Date _____

■**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.

```
    2 □ □ 4
  − □ 3 9 8
  ---------
      6 5 6
```

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

```
    5 0 2
  + 3 4 9
```

★**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   Nisha's Strategy   Estimation

```
  4 6 3 0
+ 8 5 9 1
```

```
   4630
 + 8591
  12000
    120
 +    1
```

Roberto's Board   Roberto's Strategy   Estimation

```
  9 3 4 1
+ 5 8 6 0
```

```
    9341
  + 5860
      01
```

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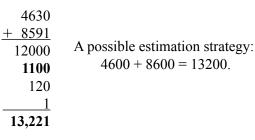
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7. A. Ana's solution is not reasonable. Her answer is bigger than the biggest number in the subtraction problem. The answer will be closer to 600.

B. Possible response: Ana could use mental math. She could first do $700 - 90 = 610$. Since the number was really 89 she would need to add 1 from 610 to make it 611 and then add the 13 she took away from 713 so, $611 + 13 = 624$.

8.
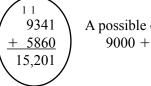$$\begin{array}{r} 20\mathbf{5}4 \\ - \mathbf{1}398 \\ \hline 656 \end{array}$$

Possible response: I thought about addition:

```
  1 1 1
  □398
+ 656
-----
 2054
```

Since the digit in the thousands place had to equal 2, I knew the digit in the thousands place in the lower number would be a 1.

9. Sam can think about $500 + 350 = 850$. Then since he took 2 away from the top number and added one to the bottom number he will have to add 1 to his answer: 851.

10. Nisha's Boards

```
    4630
  + 8591
   12000
    1100
     120
       1
  -------
  13,221
```

A possible estimation strategy: $4600 + 8600 = 13200$.

Roberto's Board

```
   1 1
   9341
 + 5860
  15,201
```

A possible estimation strategy $9000 + 6000 = 15,000$

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11. Possible strategies:

$$
\begin{array}{r}
2643 \\
+958 \\
\hline
2000 \\
1500 \\
90 \\
11 \\
\hline
3601
\end{array}
\qquad
\begin{array}{r}
\overset{1\ 1\ 1}{2643} \\
+958 \\
\hline
3601
\end{array}
$$

12. A. Rosa will win.

    B. Possible response: Rosa's top number is close to 2500 and her bottom number is close to 600. $2500 - 600 = 1900$. Suzanne's top number is close to 2700 and her bottom number is close to 700. $2700 - 700 = 2000$. Rosa's difference is smaller than Suzanne's.

13. A.* I think Jackie will win because she can make a bigger number on the top and her number on the bottom will be smaller than Tanya's so her difference will be larger.

    B.*

$$
\begin{array}{r}
432 \\
-51 \\
\hline
381
\end{array}
$$

$$
\overset{300}{\cancel{400}} + \overset{130}{\cancel{30}} + 2
$$
$$
50 + 1
$$
$$
300 + 80 + 1 = 381
$$

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