


Workshop: Subtraction

Discuss


Looking at Solutions

- Solve $7220 - 6965$. Check your answer with addition.
- What do you think about Tanya's solution?
Tanya's solution


$$\begin{array}{r} 7220 \\ - 6965 \\ \hline 1745 \end{array}$$




- Look at the student responses below. Which students do you agree with? Tell why.



Tanya's solution is not reasonable.
 $7220 - 7000 = 220$.
1745 is way too big.



Tanya's solution seems fine.
 $7000 - 6000 = 1000$.
1745 is about 1000.



Tanya subtracted wrong. Sometimes she subtracted the top number from the bottom number rather than trading.

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164 SG • Grade 3 • Unit 7 • Lesson 5 Workshop: Subtraction

Student Guide


Workshop: Subtraction (SG pp. 164–166) Questions 1–9

- 255; $255 + 6965 = 7220$
- Student responses will vary. Students might notice that Tanya sometimes subtracts the top digit from the bottom digit. Her answer is too big.
- Students should agree with Ana and Jacob. Ana and Jacob noticed that Tanya was wrong and checked her answer for reasonableness.
- 53; $53 + 268 = 321$
- Student responses will vary. Students might notice that Michael regrouped incorrectly.
- Students should agree with Jackie, Luis, and Irma. They knew that Michael traded incorrectly because the number sentence for the trades did not add up to 321.


Student Guide - Page 164

- Solve $321 - 268$. Check your answer with addition.
- What do you think about Michael's solution?
Michael's solution


$$\begin{array}{r} 2 \ 12 \ 11 \\ 321 \\ - 268 \\ \hline 63 \end{array}$$




- Look at the responses below. Which do you agree with? Tell why.



321 is not equal to $200 + 120 + 11$.
Michael made a mistake trading.



$268 + 63$ is not 321.
So Michael made a mistake.



I checked Michael's work by solving the problem another way.

$$\begin{array}{l} 321 = 300 + 20 + 1 = 200 + 110 + 11 = \\ 268 = 200 + 60 + 8 = 200 + 60 + 8 = \\ 0 + 50 + 3 = 53 \end{array}$$

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Workshop: Subtraction SG • Grade 3 • Unit 7 • Lesson 5 165

Student Guide - Page 165

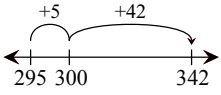
7. 112; $112 + 189 = 301$
8. Student responses will vary. Students might notice Nicholas' regrouping error. Students also might notice that his strategy is not very efficient.
- 9.* Students should agree with all 4 students.

Homework (SG p. 167)
Questions A–G

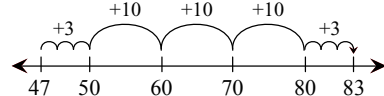
Strategies will vary.

A. $83 = 80 + 3 = 70 + 13$ Check: $\begin{array}{r} 1 \\ 36 \\ + 47 \\ \hline 83 \end{array}$
 $47 = 40 + 7 = 40 + 7$
 $\begin{array}{r} 30 + 6 = 36 \end{array}$

B. $\begin{array}{r} 251 \\ - 79 \\ \hline 172 \end{array}$ Check: $\begin{array}{r} 11 \\ 172 \\ + 79 \\ \hline 251 \end{array}$
 $79 + 1 = 80$
 $80 + 20 = 100$
 $100 + 100 = 200$
 $200 + 51 = 251$
 $100 + 51 + 20 + 1 = 172$

C. $\begin{array}{r} 342 \\ - 295 \\ \hline 47 \end{array}$ Check: $\begin{array}{r} 11 \\ 295 \\ + 47 \\ \hline 342 \end{array}$

 $295 + 5 + 42 + 5 = 342$

D. $\begin{array}{r} 713616 \\ 8376 \\ - 5847 \\ \hline 2529 \end{array}$ Check: $\begin{array}{r} 11 \\ 5847 \\ + 2529 \\ \hline 8376 \end{array}$

E. $36;$ 
 $47 + 3 + 30 + 3 = 83$

F. Possible response: From 295, count up 5 to 300, and then up 42 to 342.
 $5 + 42 = 47$, so $342 - 295 = 47$.

G. Responses will vary.

Subtraction Strategies

7. Solve $301 - 189$. Check your answer with addition.
8. What do you think about Nicholas's solution?

Nicholas's solution

$$\begin{array}{r} 2 \ 10 \ 11 \\ 3 \ 0 \ 1 \\ - 1 \ 8 \ 9 \\ \hline 1 \ 2 \ 2 \end{array}$$



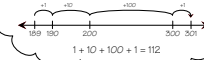
9. Which students do you agree with? Tell why.



I think he forgot something. $200 + 100 + 11$ is not 301.



I think Nicholas's strategy is a lot of work. I think counting on is better. All that trading is a lot to keep track of.



When I use paper and pencil for problems with zeros, I do this:
 $\begin{array}{r} 29 \ 11 \\ 301 \\ - 189 \\ \hline 112 \end{array}$
 Less to keep track of.



I thought of this problem as $299 - 189$ and then added 2 back in.
 $\begin{array}{r} 299 \\ - 189 \\ \hline 110 + 2 = 112 \end{array}$

Student Guide - Page 166

Homework

Solve the following problems. Use an efficient method. Show how to check each problem with addition. Use the *Subtraction Strategies Menu* from the *Student Activity Book* or the *Student Guide Reference section*.

A. $\begin{array}{r} 83 \\ - 47 \\ \hline \end{array}$

B. $\begin{array}{r} 251 \\ - 79 \\ \hline \end{array}$

C. $\begin{array}{r} 342 \\ - 295 \\ \hline \end{array}$

D. $\begin{array}{r} 8376 \\ - 5847 \\ \hline \end{array}$

E. Solve Question A using a second method.

F. Explain a way to solve Question C using mental math.

G. Do you think you chose an efficient strategy to solve Question B? Explain.

Student Guide - Page 167

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

Name _____ Date _____

Strategies to Subtract

Using Base-Ten Pieces

✓ **Self-Check: Question 1**

1. Solve $243 - 163$ using base-ten pieces. Record your work with base-ten shorthand and the recording sheet.

1000s	100s	10s	1s	Number Sentences

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Use the Workshop Menu below to choose practice with using base-ten pieces to subtract.

Can I Do This?	Working On It!	Getting It!	Got It!
Use base-ten pieces to subtract.	★ Q# 2-4, 8-9 <small>I could use some extra help.</small>	● Q# 4-9 <small>I just need some more practice.</small>	■ Q# 4, 6-9 <small>I'm ready for a challenge.</small>

Workshop: Subtraction SAB • Grade 3 • Unit 7 • Lesson 5 235

Student Activity Book - Page 235

Name _____ Date _____

Solve using base-ten pieces. Record your work with base-ten shorthand and the recording sheet.

★2. $98 - 54$

1000s	100s	10s	1s	Number Sentences

★3. $62 - 28$

1000s	100s	10s	1s	Number Sentences

★●■ 4. $154 - 28$

1000s	100s	10s	1s	Number Sentences

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236 SAB • Grade 3 • Unit 7 • Lesson 5 Workshop: Subtraction

Student Activity Book - Page 236

Student Activity Book

Strategies to Subtract (SAB pp. 235–246)
Questions 1–21

Strategies students choose will vary. Two possible strategies are given for each question.

1. 80;

100s	10s	1s	Number Sentences
2	4	3	$200 + 40 + 3$
1	14	3	$100 + 140 + 3$
1	6	3	$100 + 60 + 3$
	8	0	

2. 44;

100s	10s	1s	Number Sentences
	9	8	$90 + 8$
	5	4	$50 + 4$
	4	4	$40 + 4$

3. 34;

100s	10s	1s	Number Sentences
	6	2	$60 + 2$
	5	12	$50 + 12$
	2	8	$20 + 8$
	3	4	

4. 126;

100s	10s	1s	Number Sentences
1	5	4	$100 + 50 + 4$
1	4	14	$100 + 40 + 14$
	2	8	$20 + 8$
1	2	6	

5. 1207;

1000s	100s	10s	1s	Number Sentences
1	2	0	7	
- 2	- 4	- 4	- 5	$2000 + 400 + 40 + 5$
- 2	- 4	- 3	- 15	$2000 + 400 + 30 + 15$
- 1	2	3	8	$1000 + 200 + 30 + 8$
1	2	0	7	

6. 1068;

1000s	100s	10s	1s	Number Sentences
1	0	6	8	
- 1	- 4	- 5	- 6	$1000 + 400 + 50 + 6$
- 1	- 3	- 15	- 6	$1000 + 300 + 150 + 6$
- 1	- 3	- 14	- 16	$1000 + 300 + 140 + 16$
-	3	8	8	$300 + 80 + 8$
1	0	6	8	

7. 899;

1000s	100s	10s	1s	Number Sentences
0	8	9	9	
- 2	- 4	- 8	- 6	$2000 + 400 + 80 + 6$
- 1	- 13	- 17	- 16	$1000 + 1300 + 170 + 16$
- 1	5	8	7	$1000 + 500 + 80 + 7$
0	8	9	9	

8. A. 186;

1000s	100s	10s	1s	Number Sentences
0	3	5	4	$300 + 50 + 4$
- 1	- 3	- 4	- 14	$300 + 40 + 14$
-	2	14	14	$200 + 140 + 14$
-	1	6	8	$100 + 60 + 8$
0	1	8	6	

B. Responses will vary. Possible response:
Expanded form is similar to base-ten pieces.
The trades are recorded using number sentences.

9. Response will vary. Question 3 is shown here.

$$62 = 60 + 2 = 50 + 12$$

$$28 = 20 + 8 = 20 + 8$$

$$30 + 4 = 34$$

Name _____ Date _____

● 5. $2445 - 1238$

1000s	100s	10s	1s	Number Sentences

● 6. $1456 - 388$

1000s	100s	10s	1s	Number Sentences

● 7. $2486 - 1587$

1000s	100s	10s	1s	Number Sentences

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Student Activity Book - Page 237

Name _____ Date _____

★ 8. Look at Tara's solution to $354 - 168$.

$354 = 300 + 50 + 4 = 200 + 140 + 14$
 $168 = 100 + 60 + 8 = 100 + 60 + 8$
 $100 + 80 + 6 = 186$

This is a lot like using base-ten pieces or shorthand.

A. Show how to solve $354 - 168$ with base-ten shorthand and a base-ten recording sheet.

1000s	100s	10s	1s	Number Sentences

B. Do you agree with Tara? Why or why not?

★ 9. Choose problems from Questions 1–7 to solve using expanded form. Show your work below.

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238 SAB • Grade 3 • Unit 7 • Lesson 5 Workshop: Subtraction

Student Activity Book - Page 238

Answer Key • Lesson 5: Workshop: Subtraction

Name _____ Date _____

Using Mental Math Strategies

✓ **Self-Check: Questions 10-11**

10. Use a mental math strategy to solve $205 - 75$. Explain your strategy.

11. Use a number line to show how to solve $326 - 27$.

Use the Workshop Menu to choose practice with using mental math strategies to subtract.

Can I Do This?	Working On It!	Getting It!	Got It!
 Use mental math strategies to subtract.	 * Q# 12-14, 15E-G	 • Q# 13-15	 ■ Q# 14-15

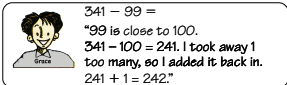
Workshop: Subtraction SAB • Grade 3 • Unit 7 • Lesson 5 239

Student Activity Book - Page 239

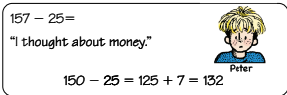
Name _____ Date _____

★12. Mrs. Hunter challenged the class to use a mental math strategy to solve each of the problems below. Grace and her classmates recorded their mental math strategies. Solve the problem next to each one using a similar strategy. Explain your thinking to your partner.

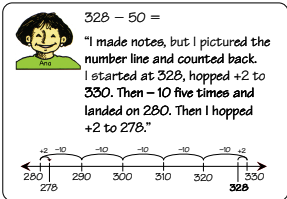
A. $132 - 98 =$



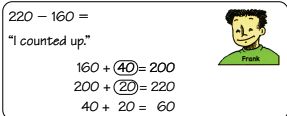
B. $504 - 175 =$



C. $352 - 98 =$



D. $320 - 250 =$



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240 SAB • Grade 3 • Unit 7 • Lesson 5 Workshop: Subtraction

Student Activity Book - Page 240

10. 130; Responses will vary.

$$205 - 75 = 130$$

I thought about money.

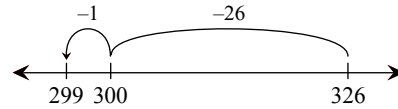
$$75 + (25) = 100$$

$$100 + (100) = 200$$

$$200 + (5) = 205$$

$$25 + 100 + 5 = 130$$

11. 299;



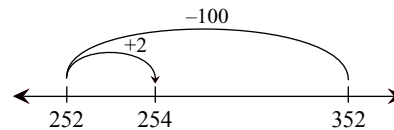
12. A. 34; $132 - 100 = 32$

$$32 + 2 = 34$$

B. 329; $500 - 175 = 325$

$$325 + 4 = 329$$

C. 254;

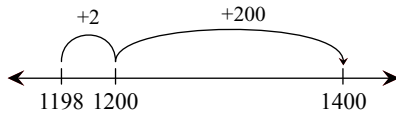


D. 70; $250 + (50) = 300$

$$300 + (20) = 320$$

$$50 + 20 = 70$$

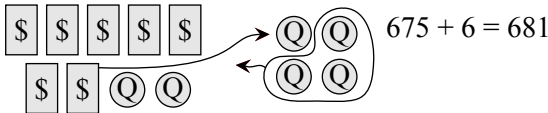
13. 202; Strategies will vary.



14. 681; Strategies will vary.

I thought about money

$$750 - 75 = 675$$



15. A. 225 B. 106
 C. 794 D. 398
 E. 450 F. 5

G. Responses will vary. A response to Question F is given.

$$997 + 3 = 1000$$

$$1000 + 2 = 1002$$

$$3 + 2 = 5$$

16. 16; Strategies will vary.

$$\begin{array}{r} 3 \ 13 \\ 43 \\ -27 \\ \hline 16 \end{array} \quad \begin{array}{l} 27 + 3 = 30 \\ 30 + 13 = 43 \\ 13 + 3 = 16 \end{array} \quad \begin{array}{l} 43 = 40 + 3 = 30 + 13 \\ 27 = 20 + 7 = 20 + 7 \\ 10 + 6 = 16 \end{array}$$

Name _____ Date _____

★●13. Use a mental math strategy to solve $1400 - 1198$. Explain your strategy to your partner. Make some notes to record your partner's strategy below. Include your partner's name.

★●14. Use a mental math strategy to solve $756 - 75$. Explain your strategy to your partner. Make some notes to record your partner's strategy below. Include your partner's name.

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Student Activity Book - Page 241

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Name _____ Date _____

15. Solve the following problems using a mental math strategy. Record your answer and explain your strategy to your partner. You do **not** need to write your strategy down, but you can jot down some notes.

●● A. $350 - 125 =$ ●● B. $604 - 498 =$

●● C. $997 - 203 =$ ●● D. $825 - 427 =$

★● E. $747 - 297 =$ ★● F. $1002 - 997 =$

★● G. Show how you solved one of the problems above by describing your strategy in the thought bubble below.

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242 SAB • Grade 3 • Unit 7 • Lesson 5 Workshop: Subtraction

Student Activity Book - Page 242

Name _____ Date _____

Using Different Methods

✓ **Self-Check: Question 16**

Use the *Subtraction Strategies Menu* in the *Student Guide Reference* section.

16. Solve $43 - 27$ using three different strategies or methods.

Use the Workshop menu to choose practice with subtraction methods.

Can I Do This?	Working On It!	Getting It!	Got It!
Use different methods to subtract.	★Q# 17-20 Use each of these methods at least once: • base-ten pieces • expanded form	●Q# 20-21 Use each of these methods at least once: • base-ten pieces • expanded form • compact method	■Q# 20-21 Use each of these methods at least once: • expanded form • compact method

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Workshop: Subtraction SAB • Grade 3 • Unit 7 • Lesson 5 243

Student Activity Book - Page 243

Answer Key • Lesson 5: Workshop: Subtraction

Name _____ Date _____

***17.** Here is how Sam solved $235 - 126$. Use the same method to solve $353 - 235$.

100s	10s	1s
2	3	5
-	-	-
1	2	6

100s	10s	1s

***18.** Here is how Maya solved $364 - 247$. Use the same method to solve $327 - 172$.

$328 = 300 + 60 + 4 = 300 + 50 + 14$
$172 = 200 + 40 + 7 = 200 + 40 + 7$
$100 + 10 + 7$
$= 117$

***19.** Here is how Josh solved $476 - 329$. Use the same method to solve $847 - 278$.

476
$+ 329$
147

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244 SAB • Grade 3 • Unit 7 • Lesson 5 Workshop: Subtraction

Student Activity Book - Page 244

Name _____ Date _____

***20.** Choose your own strategies and methods to solve the following problems. Use the *Subtraction Strategies Menu*.

A. $137 - 68$ B. $166 - 46$

C. $542 - 474$ D. $446 - 210$

E. $232 - 124$ F. $7442 - 3256$

G. $202 - 150$ H. $2551 - 1450$

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Workshop: Subtraction SAB • Grade 3 • Unit 7 • Lesson 5 245

Student Activity Book - Page 245

17. 118;

100s	10s	1s
1	1	8
-	-	-
0	1	3

18. $155; 327 = 300 + 20 + 7 = 200 + 120 + 7$
 $172 = 100 + 70 + 2 = 100 + 70 + 2$

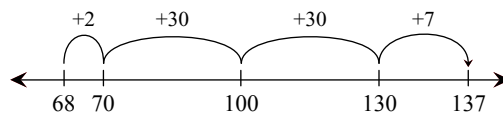
200	$+ 120$	$+ 7$
100	$+ 50$	$+ 5$
$= 155$		

19. 569;

$$\begin{array}{r} 13 \\ 7 \cancel{7} 17 \\ 847 \\ - 278 \\ \hline 569 \end{array}$$

20. Strategies will vary.

A. 69;



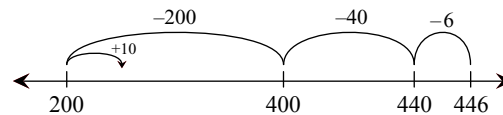
B. 120;

$$\begin{array}{r} 166 \\ - 46 \\ \hline 120 \end{array}$$

C. 68;

$$\begin{array}{l} 542 = 500 + 40 + 2 = 400 + 130 + 12 \\ 474 = 400 + 70 + 4 = 400 + 70 + 4 \\ \hline 0 + 60 + 8 = 68 \end{array}$$

D. 236;



E. 108;

$$\begin{array}{r} 2 \ 12 \\ 232 \\ - 124 \\ \hline 108 \end{array}$$

F. 4186;

$$\begin{array}{r} 13 \ 3 \ 12 \\ 7442 \\ - 3256 \\ \hline 4186 \end{array}$$

G. 52; $150 + 50 = 200$

$$200 + 2 = 202$$

$$50 + 2 = 52$$

H. 1101; 2550

$$\begin{array}{r} 2550 \\ - 1450 \\ \hline 1100 + 1 = 1101 \end{array}$$

21. Strategies and preferred strategies will vary.

A. 102;

$$\begin{array}{r} 425 - 325 = 100 \\ 100 + 2 = 102 \end{array} \qquad \begin{array}{r} 427 \\ - 325 \\ \hline 102 \end{array}$$

B. 102;

$$\begin{array}{r} 298 + \overbrace{(2 + 100)} = 400 \\ \quad \quad 102 \end{array} \qquad \begin{array}{r} 399 \\ - 298 \\ \hline 101 + 1 = 102 \end{array}$$

C. 77;

$$\begin{array}{r} 598 + \textcircled{2} = 600 \\ 600 + \textcircled{75} = 675 \\ 75 + 2 = 77 \end{array} \qquad \begin{array}{r} 16 \\ 5 \cancel{6} 15 \\ 67\cancel{5} \\ - 598 \\ \hline 77 \end{array}$$

D. 104;

$$\begin{array}{r} 456 \\ - 356 \\ \hline 100 + 4 = 104 \end{array} \qquad \begin{array}{r} 5 10 \\ 4\cancel{6}0 \\ - 356 \\ \hline 104 \end{array}$$

Name _____ Date _____

- ■ 21. • Using the *Subtraction Strategies Menu* as a guide, show how to solve each problem using two different strategies. Compare your strategies. Circle the one you like best.
 - Use a mental math strategy at least three times.
 - Use each paper-and-pencil strategy at least once.

One Strategy	Another Strategy
A. 427 - 325 =	
B. 400 - 298 =	
C. $\begin{array}{r} 675 \\ - 598 \\ \hline \end{array}$	
D. $\begin{array}{r} 460 \\ - 356 \\ \hline \end{array}$	

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Did you try all of the strategies on the *Subtraction Strategies Menu*?

Name _____ Date _____

Subtraction Quiz

Andy and Kris each solved the problem $340 - 289$. Look at the two different methods.

Andy's Strategy

$$\begin{array}{r} 10 \\ 289 \\ -289 \\ \hline 51 \end{array}$$

Kris's Strategy

$$289 + (1) = 290$$

$$290 + (10) = 300$$

$$300 + (40) = 340$$

$$40 + 10 + 1 = 51$$

1. In Andy's solution, why did he write a 10 above the zero?
2. Which strategy do you like better for this problem? Why?
3. Solve $140 - 89$ using Kris's Strategy and Andy's Strategy.

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Teacher Guide

Subtraction Quiz (TG pp. 1–2)

Questions 1–7

1. Andy traded 1 skinny (ten) for ten bits (ones).

2. Answers will vary.

3. 51 ; $89 + (1) = 90$ $90 + (10) = 100$ $100 + (40) = 140$

$$40 + 10 + 1 = 51$$

$$\begin{array}{r} 13 \\ 0 \cancel{7} 10 \\ \cancel{1} 40 \\ - 89 \\ \hline 51 \end{array}$$

4. 362

5. 1714

6. $\begin{array}{r} 1 \\ 362 \\ + 267 \\ \hline 629 \end{array}$

7. 14; Strategies will vary.

$$43 = 40 + 3 = 30 + 13$$

$$29 = 20 + 9 = 20 + 9$$

$$10 + 4 = 14$$

$$29 + (1) = 30$$

$$30 + (13) = 43$$

$$13 + 1 = 14$$

Teacher Guide - Page 1

Name _____ Date _____

Solve and check your answer. Use the *Subtraction Strategies Menu*.

4. $\begin{array}{r} 629 \\ -267 \\ \hline \end{array}$

5. $\begin{array}{r} 5001 \\ -3287 \\ \hline \end{array}$

6. Show how you checked your answer to Question 4.
7. Show how to solve $43 - 29$ two different ways.

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Subtraction Quiz Feedback Box	Expectation	Check In	Comments
Apply place value concepts to make connections among representations of numbers. [Q# 1]	E1		
Subtract multidigit numbers using mental math strategies. [Q# 3–7]	E3		
Subtract multidigit numbers using paper-and-pencil methods. [Q# 3–7]	E4		

Assessment Master TG • Grade 3 • Unit 7 • Lesson 5 2

Teacher Guide - Page 2