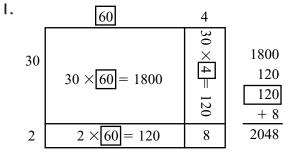
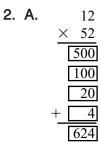
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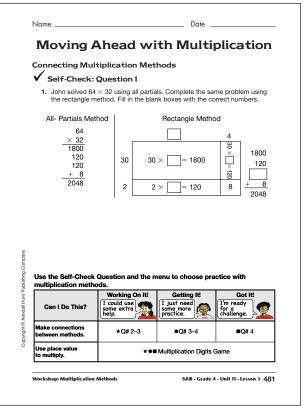
Moving Ahead with Multiplication



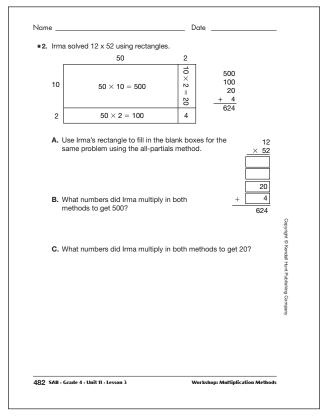




B. $50 \times 10 = 500$ **C.** $10 \times 2 = 20$

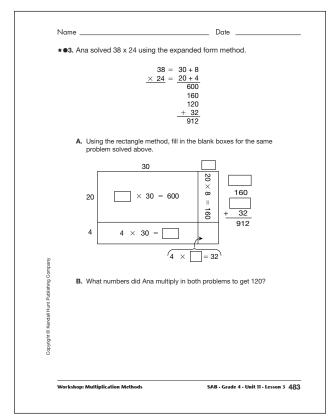


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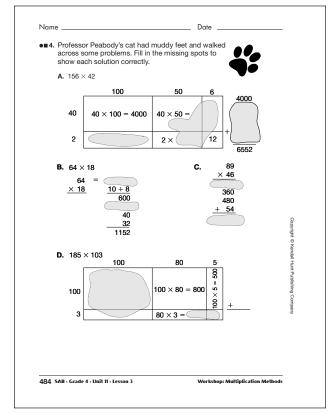


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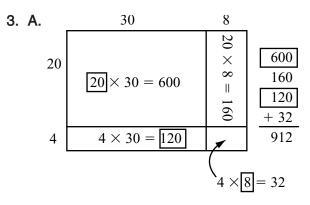
I



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B. $4 \times 30 = 120$

4. A.

	100	50	6
40	$40 \times 100 = 4000$	$40 \times 50 = 2000$	$40 \times 6 = 240$
2	$2 \times 100 = 200$	$\begin{array}{l} 2 \times 50 \\ = 100 \end{array}$	12
	$B. 64 = 60 - \frac{10}{6} - \frac{10}$	$\begin{array}{c} + 8 \\ 500 \\ 40 \\ 180 \\ 32 \\ + \end{array}$	89 46 3200 360 480 54 4094

D.		100	80	5
	100	$100 \times 100 = $ 10,000	$100 \times 80 = \\800$	$100 \times 5 = 500$
	3	$100 \times 3 = 300$	$80 \times 3 = 240$	15
			10,000 800	
			500	

300 250

+ 1511,355

5. 819; 39×21 using a mental math strategy: $40 \times 21 = 800 + 40$ because $40 \times 20 = 800$ and one more 40. But now I need to subtract one 21. 800 + 40 - 21 = 819. 39×21 using all-partials:

		39
2	×	21
_		600
		180
		30
-	╀	9
		819

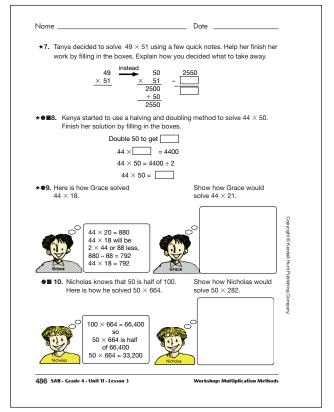
6. Yes, I agree with Michael. He made the multiplication problem easier by doing 90×46 . He had one 46 too many, so he subtracted.

Tanya needed to take away one 51 because she added in one too many when she did 50×51 for 49×51 .

- 8. Double 50 to get 100 $44 \times 100 = 4400$ $44 \times 50 = 4400 \div 2$ $44 \times 50 = 2200$
- 924; 44 × 20 = 880
 44 × 21 will be 44 × 1 or 44 more, 880 + 44 = 924
 44 × 21 = 924
- **10.** 14,100; 100 × 282 = 28,200 so 50 × 282 is half of 28,200; 50 × 282 = 14,100

✓ Self-Check:	Outortion E		
		strategy and a pape	r-and-pencil
Mental Ma	ath Strategy	Paper-and-Pe	encil Method
°°0			~~~
Use the Self-Check mental math strateg		nenu to choose pra	ctice with using
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 mental math strategies to multiply.	★Q#6-9	●Q# 8–10, 12	■Q# 8,10–12
 *6. Michael solved 1 can't remember those multiplication facts. 	89 × 46 another wa	I can do 90×46 and then such that the extra 46. 4140 - 40 - 6 = because I had to a away one 46. So, 89 \times 46 = 409	ubtract) 90 4094 × 46 3600 take + 540 4140

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Name		Date
∎11.	Here is how Jessie solved 204×40 in her head.	Show how Jessie would solve 222×60 in her head
Jes	$\begin{array}{c} & & \\$	Jessie
	Solve the three problems below math and at least one using pap Show mental math strategies in Show paper-and-pencil method	the thought bubbles.
(A. 98 × 20 B. 51 ×	22 C. 22 × 29
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	p: Multiplication Methods	SAB · Grade 4 · Unit 11 · Lesson 3 48

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- You can think about 222 × 60 as 222 × 30 + 222 × 30 6660 + 6660 = 13,320
- **12.** Strategies will vary. Possible responses:
 - **A.** 98 × 20 using a mental math strategy: $100 \times 20 = 2000$ minus two 20s. $2000 - 20 \times 2 = 1960$

 98×20 using all-partials: 98

$$\frac{\times 20}{1800}$$
$$\frac{+ 160}{1960}$$

- **B.** 51×22 using a mental math strategy: $100 \times 22 = 2200$ so $50 \times 22 = 1100$. 1100 + 22 = 1122.
 - 51×22 using rectangle method:

	50	1	1000
20	$50 \times 20 = 1000$	20	+ 100
			20
2	$50 \times 2 = 100$	2	$\frac{2}{1122}$

- **C.** 22×29 using a mental math strategy: $22 \times 30 = 22 \times 3$ tens = 66 tens 66 tens = 660 660 - 22 = 638
 - 22×29 using expanded form:

22	=	20 + 2
$\times 29$		20 + 9
		400
		40
		180
		18
		638

- **13. A.** Jessie did not use her estimate to check her answer. 690 is not between 1400 and 2400.
 - **B.** No, Jessie's answer is not reasonable.
 - **C.** Methods will vary. $26 \times 75 = 1950$

Using all-partials:

	26
X	75
14	400
4	420
	100
	30
19	950

- **D.** I think my calculation is reasonable. 1950 is between 1400 and 2400.
- **14. A.** Romesh did not use his estimate. His estimate was very different from his calculated answer.
 - **B.** I do not agree with Romesh's estimate. $70 \times 40 = 2800.$
 - **C.** Round 73 to 70 and 38 to 40. $70 \times 40 = 2800$.
 - **D.** Yes, 2774 is close to 2800.

Name		Date		
s the Answer F	leasonable?			
Self-Check:	Question 13			
13. Jessie solved 2 her answer was		nd an estimate in he	er head to check that	
7	0 5		20 × 70 = 1400	
	20 ×	1	30 × 80 = 2400 The answer will be between 1400 and	
20 20 × 70	0 = 1400 ຫ ແ	420	2400.	
6 6 × 70	0 = 420 30	100 + 30 690	e o o o o o o o o o o o o o o o o o o o	
think that	?	o check her answer?		
B. Do you aç	gree with Jessie's an	swer? Why or why r	not?	Copyrig
C. Choose y	our own strategy an	d solve 26 $ imes$ 75.		nt © Kendall
D. Is your an	swer to Question 12	C reasonable? How	do you know?	Copyright © Kendall Hunt Publishing Company
Jse the Self-Check estimating product		e menu to choose	practice with	thing Comp
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.	any
			■Q# 14, 17–20,	
Estimate products to check if my answers make sense.	★Q# 14–16, 21–23, 24–26	●Q# 14–19, 21–28	21-23, 27-29	
check if my answers	24–26			

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Name		Date
	comesh solved 73 $ imes$ 38. He vas reasonable.	le found an estimate to check that his answer
	x 3 56 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
	think that?	
В.	Do you agree with Rome	esh's estimate? Why or why not?
C.	Explain how Romesh ca	an find an efficient estimate in his head.
Coordination of Management Production of Coordination of Coord	Using your estimate in C reasonable? How do yoi	Question 13C, is Romesh's answer lu know?

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● ■ 19. 46 × 38	■ 20. 999 × 75
●■ 17. 278 × 90	●■ 18. 72 × 38
★● 15. 50 × 48	★● 16. 40 × 502

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-	Workshop:	Multiplication Methods		5AB • Grade 4 • Unit 11 • Lesson 3 4
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	*●∎22.	Choose a different proble Was your answer reason	em and show yo able? Why or wh	ur estimation strategy. y not?
	*●■21.	Choose a problem from (solve it using mental mat		and show how you can
	Name			Date

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Strategies will vary. One possible strategy is given

for each.
15. 2400; $100 \times 48 = 4800$ so $50 \times 48 = 2400$.
16. 20,080; I multiplied 40 and 500 and then added two 40s. $40 \times 500 = 20,000$. 20,000 + 80 = 20,080.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{array}{rcrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
20. 74,925; 1000 × 75 = 75,000 -75 74,925

- **21.** Responses will vary. See Questions 15 and 16 above.
- **22.** Responses will vary.

23. A. Not reasonable; $5 \times 40 = 200$ 35 and $5 \times 30 = 150$; 1525 is not between 200 and 150.

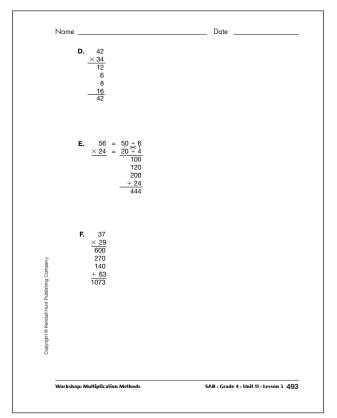
- **B.** Reasonable; $30 \times 20 = 600$
- **C.** Not reasonable; $30 \times 40 = 1200$ (low estimate); $40 \times 40 = 1600, 40 \times 50 = 2000$ (high estimate); 180 is too low.

	30	5
40	1200	200
5	150	25

- **D.** Not reasonable; 42 $40 \times 30 = 1200;$ \times 34 the answer should 1200 be larger than 60 1200. 160 8 1428
- **E.** Not reasonable; 56 = 50 + 6 $60 \times 20 = 1200;$ 24 = 20 + 4444 is too small. 1000 120 200 + 24 1344
- **F.** Reasonable; $40 \times 30 = 1200$; 1073 is only about 125 less.

Che	ck-In: Question 23	
	Noe Smart worked on their homework together. They did not to make sure their answers made sense.	
23.	Estimate answers for each of Joe's and Moe's problems below.	
	 Just write down your estimates. You do not need to show your thinking. 	
	 Use your estimates. Which of the answers make sense? 	
	 Which answers do not make sense? Which problems should Joe and Moe recheck? 	
	 For each answer that does not make sense, solve the problem correctly using the same method as Joe and Moe. (Hint: Do not do any more problems than you have to. Use your estimates to choose the problems you need to correct.) 	
,	A. $35 \\ \frac{\times 5}{1525}$	
E	3. 33 × 21 33 × 20 = 660, plus 33 makes 693,	Copyright @ Kendall Hunt Publishing Company
		lompa
(C. 35 × 45 30 5	ny
	40 120 20	
	5 15 25	
	120 + 15 + 20 + 25 = 180	

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Name _

Estimation Strategies

Work with a partner to estimate answers for Questions 24–29. For each problem:

Estimate an answer on your own. Use mental math if you can. Write your own estimate in the first box.

Date _

- Share your estimate with your partner and explain your reasoning. Write your partner's estimate in the box under his or her name.
- Discuss with your partner which estimate is the best and why you think so. Write your group's best estimate in the "Our Best" column.
- In the "Our Reasoning" column, show or tell why your group decided it was the best estimate.

The first problem is an example.

		ESTIMATES	;	
Problem	Mine	Partner Name:	Our Best	Our Reasoning
Example $18 imes 27$	600	500	500	This estimate is best because the friendly numbers we chose got us closest to original numbers. $20 \times 25 = 500$ is close to 486, the exact answer.
●24.				
38 × 52				
€ €25.				
98 × 19				
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		ESTIMATES		
Problem	Mine	Partner Name:	Our Best	Our Reasoning
★●26.				
89 × 38				
●∎27.				
75 × 25				
●■28.				
46 × 51				
■29.				
62 × 985				

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For Questions 24–29, estimates and reasoning will vary. Possible estimates are given.

- **24.** $40 \times 50 = 2000$
- **25.** $100 \times 20 = 2000$
- **26.** $90 \times 40 = 3600$
- **27.** 80 × 20 = 1600
- **28.** $50 \times 50 = 2500$
- **29.** $62 \times 1000 = 62,000$