Chapter 14

Lesson 6

Name _____ Date _____

Generalizing a Multiplication Pattern

NCTM Standards 1, 2, 6, 7, 8, 9, 10

1 Complete the chart.

Try some examples of your own.

Words	Shorthand	Ben	Al	Mary	Jane	A	B	C
Think of a number.	n	3	5	11	4			
Multiply your number by itself.	$n \bullet n$	9						
Subtract 1 from the product.	$(n \bullet n) - 1$	8						
Add 1 to the number you thought of.	$n + 1$	4						
Subtract 1 from the number you thought of.	$n - 1$	2						
Multiply your results together.	$(n + 1) \bullet (n - 1)$	8						

2 Draw a picture to show that $(5 \bullet 5) - 1 = (5 + 1) \bullet (5 - 1)$.

Use square numbers to help you find the products below.

3. $31 \bullet 29 = \square$

Hint: What's $30 \bullet 30$?

4. $51 \bullet 49 = \square$

5. $13 \bullet 11 = \square$

6. $101 \bullet 99 = \square$

7. $41 \bullet 39 = \square$

8. $71 \bullet 69 = \square$

Use nearby products to find square numbers.

9. $(31 \bullet 31) - 1 = \square$

Hint: What's $30 \bullet 32$?

10. $(51 \bullet 51) - 1 = \square$

11. $(41 \bullet 41) - 1 = \square$

12. $(101 \bullet 101) - 1 = \square$

13. **Challenge** Jeneba is tiling a 14-foot by 14-foot square room. She bought exactly enough tiles to do this. But then she changed her mind and decided to tile a room that is 13 feet by 15 feet. Does she have enough tiles to do this?

Draw a picture and write a number sentence to explain how you found the answer.