

Unit 11: Patterns and Algebra

Name: _____

Quiz (Lessons 13–14) — MB

Date: _____

1. a) Fill in the T-table for the number of squares in each figure of the geometric pattern. Extend the number pattern.



Figure 1



Figure 2

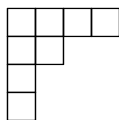


Figure 3

Figure Number	Number of Squares
1	
2	
3	
4	
5	



- b) Write the rule for the number pattern.

Start at _____ and _____

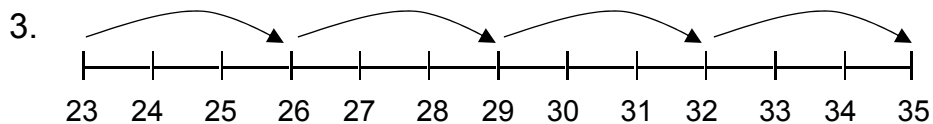
2. Which number do you add or subtract each time? Write the rule for the number pattern.

a) 15 , 12 , 9 , 6 , 3

Start at _____

b) 1 , 5 , 9 , 13 , 17

Start at _____



- a) Write the number pattern the picture shows.

- b) Write a rule for the number pattern.

Start at _____

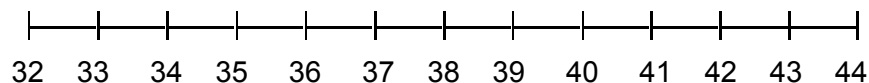
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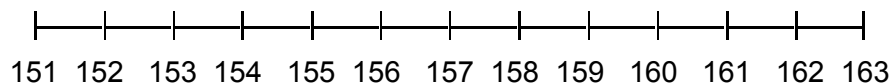
Quiz (Lessons 13–14) — MB

4. Write the first 4 numbers in the number pattern. Show the pattern on the number line.

Start at 32. Add 4 each time. _____



5. Draw a decreasing pattern on the number line.



a) Write the numbers in your pattern. _____

b) Write a rule for your number pattern.

Start at _____

BONUS► Write the rule for the number pattern.

925, 910, 895, 880, 865

Unit 11: Patterns and Algebra

Quiz (Lessons 13–14) — MB

1. a) gap: +2

4
6
8
10
12

- b) 4, add 2 each time

2. a) gap: -3

15 and subtract 3
each time

- b) gap: +4

1 and add 4 each
time

3. a) 23, 26, 29, 32, 35

- b) 23 and add 3 each
time

4. 32, 36, 40, 44

Teacher to check number
line.

5. Answers will vary. Teacher
to check.

BONUS

Start at 925 and subtract
15 each time.

Unit 11: Patterns and Algebra

Quiz (Lessons 15–19) — MB

Name: _____

Date: _____

1. a) Write four multiples of 7.

$1 \times 7 = \underline{\hspace{2cm}}$

$2 \times 7 = \underline{\hspace{2cm}}$

$3 \times 7 = \underline{\hspace{2cm}}$

$4 \times 7 = \underline{\hspace{2cm}}$

February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

- b) On what day of the week do the multiples of 7 occur on the calendar?

2. Write “T” if the equation is true. Write “F” if the equation is false.

a) $5 \times 8 = 40$ _____

b) $9 + 6 = 13$ _____

c) $42 \div 6 = 8$ _____

d) $13 - 4 = 9$ _____

e) $7 \times 7 = 48$ _____

f) $6 + 7 = 13$ _____

3. Solve the equation by guessing and checking.

a) $8 + \square = 13$

b) $\square + 6 = 15$

c) $4 + \square = 12$

4. Write the fact family for the picture.



5. Write the subtraction equation to find the missing number.

a) $12 = 7 + \square$

b) $6 + \square = 14$

c) $4 + \square = 11$

Unit 11: Patterns and Algebra

continued

Quiz (Lessons 15–19) — MB

6. Solve the equation by guessing and checking.

a) $\square - 5 = 8$

b) $\square - 7 = 9$

c) $\square - 3 = 9$

7. Write an addition equation to find the missing number.

a) $\square - 5 = 7$

b) $\square - 8 = 9$

c) $\square - 6 = 13$

8. Write the other subtraction equation from the same fact family.
Find the number in the box.

a) $14 - \square = 9$

b) $13 - \square = 6$

c) $11 - \square = 4$

_____ = \square

_____ = \square

_____ = \square

9. Solve the equation.

a) $7 - x = 4$

b) $15 = 9 + y$

c) $8 = x - 9$

$x =$ _____

$y =$ _____

$x =$ _____

BONUS ► Solve the equation.

$$500 - x = 200$$

$x =$ _____

Unit 11: Patterns and Algebra

Answer Key

Quiz (Lessons 15–19) — MB

1. a) 7
14
21
28
b) Saturday
2. a) T
b) F
c) F
d) T
e) F
f) T
3. a) 5
b) 9
c) 8
4. $2 + 4 = 6$, $4 + 2 = 6$,
 $6 - 2 = 4$, $6 - 4 = 2$
5. a) $12 - 7 = 5$
b) $14 - 6 = 8$
c) $11 - 4 = 7$
6. a) 13
b) 16
c) 12
7. a) $7 + 5 = 12$
b) $9 + 8 = 17$
c) $13 + 6 = 19$
8. a) $14 - 9 = 5$
b) $13 - 6 = 7$
c) $11 - 4 = 7$
9. a) $7 - 4 = 3$
 $x = 3$
b) $15 - 9 = 6$
 $y = 6$
c) $8 + 9 = 17$
 $x = 17$

BONUS

$$500 - 200 = 300$$
$$x = 300$$

Unit 11: Patterns and Algebra

Test (Lessons 13–19) — MB

Name: _____

Date: _____

1. a) Fill in the T-table for the number of triangles in each figure of the geometric pattern. Extend the number pattern.

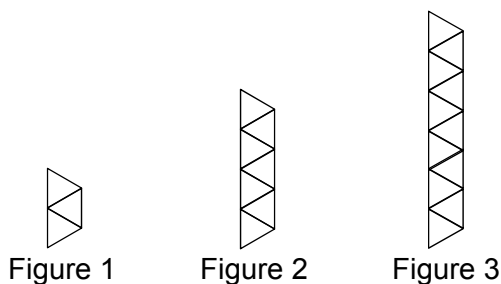
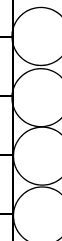
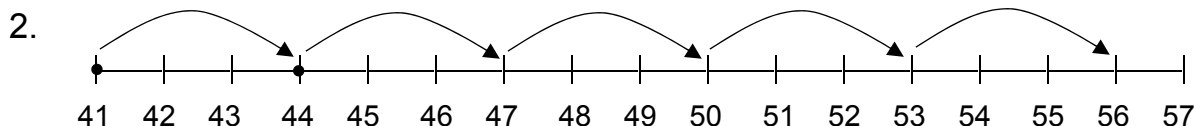


Figure Number	Number of Triangles
1	
2	
3	
4	
5	



- b) Write the rule for the number pattern.

Start at _____ and _____



- a) Write the number pattern the picture shows.

- b) Write a rule for the number pattern.

Start at _____ and _____

3. Which number do you add or subtract each time? Write the rule for the number pattern.

a) 15, 25, 35, 45, 55

Start at _____

b) 65, 56, 47, 38, 29

Start at _____

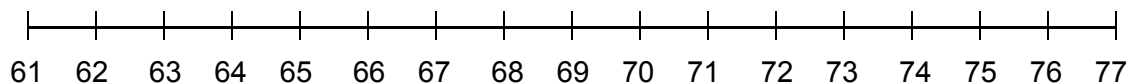
Unit 11: Patterns and Algebra

continued

Test (Lessons 13–19) — MB

4. Write the first 4 numbers in the number pattern. Show the pattern on the number line.

Start at 75. Subtract 3 each time. _____



5. a) Describe the number pattern in the shaded row.

Start at _____, add _____ each time.

- b) The shaded numbers are all multiples of _____.

31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

6. Write “T” if the equation is true. Write “F” if the equation is false.

a) $9 \times 2 = 11$ _____ b) $7 + 4 = 11$ _____ c) $6 + 6 = 36$ _____

7. Write the subtraction equation to find the missing number.

a) $14 = 9 + \square$ b) $3 + \square = 11$ c) $17 = 8 + \square$

8. Write the addition equation to find the missing number.

a) $\square - 7 = 5$ b) $\square - 8 = 6$ c) $\square - 4 = 7$

Unit 11: Patterns and Algebra

continued

Test (Lessons 13–19) — MB

9. Write the other subtraction equation from the same fact family.
Find the number in the box.

a) $12 - \square = 3$

b) $16 - \square = 9$

c) $13 - \square = 6$

10. Solve the equation.

a) $12 - x = 4$

$x = \underline{\hspace{2cm}}$

b) $14 = 8 + y$

$y = \underline{\hspace{2cm}}$

c) $7 = y - 3$

$y = \underline{\hspace{2cm}}$

11. Tania wants to solve the equation $7 + \underline{\hspace{1cm}} = 12$. Explain how knowing the fact family can help her solve the equation.

BONUS► Solve the equation.

a) $34 + 23 + x = 67$

b) $48 = 57 - x$

Unit 11: Patterns and Algebra

Answer Key

Test (Lessons 13–19) — MB

1. a) gap: +4
- | |
|----|
| 3 |
| 7 |
| 11 |
| 15 |
| 19 |
- b) 3, add 4 each time
2. a) 41, 44, 47, 50, 53, 56
- b) 41, add 3 each time
3. a) gap: +10
15 and add 10 each time
- b) gap: -9
65 and subtract 9 each time
4. 75, 72, 69, 66
Teacher to check number line.
5. a) 40, 10
- b) 10
6. a) F
- b) T
- c) F
7. a) $14 - 9 = 5$
- b) $11 - 3 = 8$
- c) $17 - 8 = 9$
8. a) $7 + 5 = 12$
- b) $8 + 6 = 14$
- c) $7 + 4 = 11$
9. a) $12 - 3 = 9$
- b) $16 - 9 = 7$
- c) $13 - 6 = 7$
10. a) $12 - 4 = 8$
 $x = 8$
- b) $14 - 8 = 6$
 $y = 6$
- c) $7 + 3 = 10$
 $y = 10$
11. Sample answer:
If Tania knows the fact family, she knows that $12 - 7 = 5$.

BONUS

- a) $57 + x = 67$
 $67 - 57 = 10$
 $x = 10$

b) $48 = 57 - x$
 $57 - 48 = 9$
 $x = 9$