

TEST NAME: **Patterns of Multiplication**
TEST ID: **2712666**
GRADE: **03 - Third Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **My Classroom**

Student: _____
Class: _____
Date: _____

1. Students recorded the number of books they read each week. Which reading log shows the number of books increasing by 2s?
A. 2, 3, 4, 5
B. 3, 5, 7, 10
C. 3, 5, 7, 9
D. 4, 7, 10, 13
2. Mrs. Rainey asked her students to look for a pattern in the shaded row below.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	37	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	37	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Which pattern could they see?

- A. An odd number multiplied by an odd number equals an even number.
- B. An odd number multiplied by an even number equals an odd number.
- C. An odd number multiplied by an even number equals an even number.

3. James wrote these number facts on his paper.

$1 + 3 = 4$	$1 \times 3 = 3$
$1 + 4 = 5$	$1 \times 4 = 4$
$1 + 5 = 6$	$1 \times 5 = 5$
$1 + 6 = 7$	$1 \times 6 = 6$

James identified an arithmetic pattern where the sum of two odd numbers is an even number. Which number fact shows this arithmetic pattern?

- A. $3 + 5 = 8$
- B. $3 + 6 = 9$
- C. $8 + 5 = 13$
- D. $2 + 2 = 4$

4. This addition table has two shaded rows.

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20

Which statement explains how the two shaded rows are related?

- A. The numbers on both rows are the same.
 - B. The numbers on the bottom shaded row are 1 more than the numbers on the top shaded row.
 - C. The numbers on the top shaded row are 1 more than the numbers on the bottom shaded row.
 - D. The numbers on the bottom shaded row are 2 more than the numbers on the top shaded row.
5. Julie wrote the number pattern below.

2, 5, 4, 7, 6, 9, 8, 11

What is the rule for her number pattern?

- A. Add 3.
- B. Subtract 1.
- C. Add 3, then subtract 1.
- D. Add 1, then subtract 3.

6. Kim was playing a number game. She said, "4, 8, 12, 16, 20." What is the rule for her number game?
- A. Add 4.
 - B. Add 8.
 - C. Multiply by 2.
 - D. Multiply by 5.
7. What number is missing in this pattern?
- 327, 333, 339, _____, 351, 357
- A. 340
 - B. 344
 - C. 345
8. What is the missing number in this sequence?
- 750, 730, 710, _____, 670, 650, 630
- A. 720
 - B. 700
 - C. 690
9. Tori said that anytime an odd number is multiplied by any other number, the answer will always be an odd number. Which multiplication fact proves Tori is incorrect?
- A. 3×7
 - B. 5×6
 - C. 7×5
 - D. 9×3

10. Susan found a pattern when multiplying numbers by 8. Which pattern could Susan have found?
- A. all of the products are even numbers
 - B. all of the products are odd numbers
 - C. all of the products end in 2
 - D. all of the products end in 8
11. Maria said that the sum of two odd numbers is always even. Which equations prove she is correct?
- A. $7 + 9 = 16$ and $3 + 7 = 10$
 - B. $2 + 7 = 9$ and $3 + 8 = 11$
 - C. $4 + 4 = 8$ and $6 + 6 = 12$
12. Frances is riding a tour bus at an amusement park. The bus makes several stops during the trip as shown in the table.

Tour Bus

Number of Stops	Length of Bus Trip (minutes)
1	3
2	6
3	9
4	12

Which rule BEST describes the numbers in the table?

- A. Add 2 to the number of bus stops to get the length.
- B. Subtract 2 from the number of bus stops to get the length.
- C. Divide the number of bus stops by 3 to get the length.
- D. Multiply the number of bus stops by 3 to get the length.

13. Billy circled some numbers on the hundreds board below.

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	29	30
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
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Which describes the pattern in the numbers Billy circled?

- A. increases by 1
 - B. increases by 10
 - C. increases by 11
 - D. increases by 100
14. A student writes four numbers in a pattern.
- 4, 7, 10, 13, ?

Which rule continues the pattern?

- A. Add 3 to 13
- B. Add 7 to 13
- C. Add 12 to 13
- D. Add 16 to 13

15. If the pattern below continues, what number comes next?

2, 7, 12, 17, 22, ...

- A. 5
- B. 27
- C. 32

16. Jennifer wrote the pattern below.

7, 14, 21, 28, 35, 42

Which statement describes the pattern that Jennifer wrote?

- A. a pattern of odd numbers
- B. a pattern of even numbers
- C. a pattern of multiplying by 2
- D. a pattern of skip counting by 7s

17. Use the table to answer the question.

In	Out
6	60
8	80
10	100
12	?

Which number comes next in the table?

- A. 100
- B. 110
- C. 112
- D. 120

18. Andrew wrote the numbers below.

7, 13, 19, 25, 31

Which describes the pattern in the numbers?

- A. Multiply by 2.
- B. Multiply by 3.
- C. Add 6.
- D. Add 7.

19. What pattern occurs in the multiplication table below in the shaded areas?

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

- A. Each number increases by 5, then decreases by 10.
- B. The numbers alternate between even and odd.
- C. All of the numbers end in 5.
20. Miguel is having a pizza party. The weights of several pizzas stacked in boxes on a counter are shown in the chart below.

Pizzas

Number of Pizzas in Boxes	Total Weight (pounds)
2	8
4	16
6	24

Which rule BEST describes a way to find the total weight of a stack of pizzas?

- A. Add 6 to the number of pizzas.
- B. Add 18 to the number of pizzas.
- C. Multiply the number of pizzas by 3.
- D. Multiply the number of pizzas by 4.

21. Danny grew a sunflower in his garden. He created the chart below to keep track of its height.

Day	7	8	9	10
Height (cm)	13	15	17	19

If the plant grew the same amount each day, how tall will the sunflower be on day 15?

- A. 11 cm
 - B. 21 cm
 - C. 28 cm
 - D. 29 cm
22. Which is true when any number is multiplied by 2?
- A. The answer is odd.
 - B. The answer is even.
 - C. The answer will have all the same digits.
 - D. The answer becomes a two-digit number.
23. What is the rule for the pattern below?

9, 18, 36, 72, 144

- A. Add 9.
- B. Add 9, then add 18.
- C. Multiply by 2.
- D. Multiply by 3.

24. What are the next three numbers in the pattern below?

200, 180, 160, 140, _____, _____, _____

- A. 120, 110, 100
- B. 120, 100, 80
- C. 100, 90, 80
- D. 100, 80, 60

25. Which tells the relationship between column *R* and column *S*?

<i>R</i>	<i>S</i>
1	4
2	8
3	12
4	16

- A. Add 3 to *R* to get *S*.
- B. Add 6 to *R* to get *S*.
- C. Multiply *R* by 2 to get *S*.
- D. Multiply *R* by 4 to get *S*.

26. A boy writes four numbers in a pattern. The boy adds 6 to each number to get the next number. Which numbers did the boy write?

- A. 6,16,26,36,46
- B. 8,14,20,26,32
- C. 28,22,16,10,4
- D. 48,24,12,6,3

27. Which group of numbers is increasing by 4?

- A. 28, 30, 32, 34
- B. 20, 24, 32, 36
- C. 20, 24, 28, 32

28. Mrs. Collins' class is studying patterns. Three of her students made the statements below.

- Jason said "Adding two even numbers equals an even sum."
- Tamara said "Adding two even numbers equals an odd sum."
- Alexandro said "Adding two odd numbers equals an odd sum."

Which student is correct?

- A. Jason
- B. Tamara
- C. Alexandro

29. Nancy used the same rule on each number in Row A to get the number below it in Row B as shown in the table.

A	1	2	3	4
B	4	8	12	16

Which **BEST** describes the relationship of the numbers in Row A to the numbers in Row B?

- A. Row B is 4 times the value of Row A
- B. Row A is 3 times the value of Row B
- C. Row B is 4 more the value of Row A
- D. Row A is 3 less the value of Row B

Students used the multiplication chart below to count by 5s to 30.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Which shows the correct pattern of numbers?

- A. 8, 16, 24, 32
- B. 7, 14, 21, 28, 35
- C. 6, 12, 18, 24, 30
- D. 5, 10, 15, 20, 25, 30