Number Patterns - Year 4

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NUMBER PATTERN DETECTIVE TOOLKIT

1. Compare neighbouring terms
2. Name the change + − × ÷
3. Test the rule
4. Predict and explain

EXAMPLE PATTERNS

18, 25, 32, 39 ...	ADD 7
96, 88, 80, 72 ...	SUBTRACT 8
3, 9, 27, 81 ...	MULTIPLY BY 3

TERM – a number in the pattern

RULE – the repeated operation

PATTERN SEARCH MISSION

Work with a partner. Draw each clue's trail on the grid, then record its rule.

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

LEGEND

- Across
- Down
- Diagonal

Rule: _____

Rule: _____

Rule: _____

PATTERN SEARCH MISSION - CLUES

A 4, 14, 24, 34

Rule: _____

B 63, 54, 45, 36

Rule: _____

C 7, 16, 25, 34

Rule: _____

D 92, 82, 72, 62

Rule: _____

E 11, 22, 33, 44

Rule: _____

F 78, 69, 60, 51

Rule: _____

G 5, 15, 25, 35

Rule: _____

H 99, 88, 77, 66

Rule: _____

CLUE	NEXT TERM 1	NEXT TERM 2	RULE
A			
B			
C			
D			
E			
F			
G			
H			

MYSTERY PATTERN MACHINE LAB

Choose a challenge card. Test every pair. Name the rule. Then invent one new input and output.

INPUT

OUTPUT

	INPUT	RULE	OUTPUT
1			
2			
3			
4			

PROVE IT

Explain how two pairs confirm your rule.

MYSTERY MACHINE
CHALLENGE CARDS

A

IN	OUT
2	10
4	20
7	35
9	45

RULE: _____

B

IN	OUT
6	11
12	17
25	30
[illegible]	45

RULE: _____

C

IN	OUT
9	3
18	6
30	[illegible]
42	[illegible]

RULE: _____

D

IN	OUT
5	20
8	32
11	44
15	60

RULE: _____

E

IN	OUT
[illegible]	10
[illegible]	21
38	34
50	46

RULE: _____

F

IN	OUT
3	24
5	40
7	56
10	80

RULE: _____

G

IN	OUT
8	16
14	28
21	42
35	70

RULE: _____

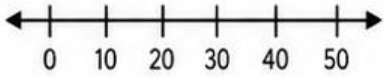
H

IN	OUT
11	33
15	45
22	66
30	90

RULE: _____

Name: _____ Date: _____

ADD AND SUBTRACT RULE DETECTIVES - A



Write the next two terms and the rule for each pattern.

1. 24, 31, 38, 45

Next two terms: ☐ ☐ Rule: _____

2. 83, 77, 71, 65

Next two terms: ☐ ☐ Rule: _____

3. 16, 28, 40, 52

Next two terms: ☐ ☐ Rule: _____

4. 105, 95, 85, 75

Next two terms: ☐ ☐ Rule: _____

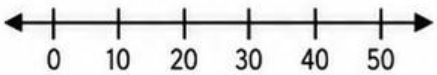
5. 7, 22, 37, 52

Next two terms: ☐ ☐ Rule: _____

6. 142, 122, 102, 82

Next two terms: ☐ ☐ Rule: _____

MISSING TERMS

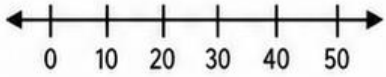


7. 13, ___, 27, 34, ___

8. 96, 84, ___, 60, ___

Name: ANSWERS Date: _____

ADD AND SUBTRACT RULE DETECTIVES - A



Write the next two terms and the rule for each pattern.

1. 24, 31, 38, 45
   Next two terms: 52, 59
   Rule: add 7

2. 83, 77, 71, 65
   Next two terms: 59, 53
   Rule: subtract 6

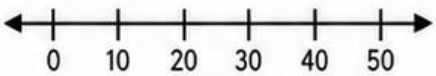
3. 16, 28, 40, 52
   Next two terms: 64, [illegible]
   Rule: add 12

4. 105, 95, 85, 75
   Next two terms: [illegible], 55
   Rule: subtract 10

5. 7, 22, 37, 52
   Next two terms: 67, 82
   Rule: add 15

6. 142, 122, 102, [illegible]
   Next two terms: 62, 42
   Rule: subtract 20

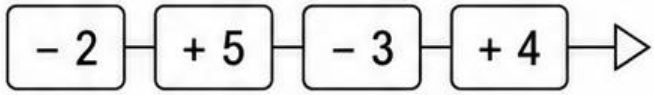
MISSING TERMS



7. 13, 20, 27, 34, 41

8. 96, 84, 72, 60, 48

ADD AND SUBTRACT RULE DETECTIVES - B



Name: _____ Date: _____

ODD ONE OUT

Circle the term that breaks the rule. Write the correction and the rule.

1. 18, 27, 36, 46, 54

Correction: _____ Rule: _____

2. 120, 105, 90, 75, 55

Correction: _____ Rule: _____

3. 44, 50, 56, 6[illegible], 68

Correction: _____ Rule: _____

4. 97, 88, [illegible], 62

Correction: _____ Rule: _____

BUILD BACK[illegible]RDS

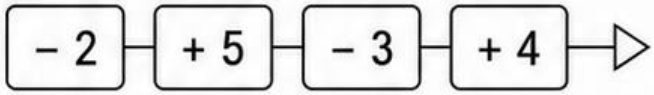
Complete the two ter[illegible]efore each pattern.

5. _____ , _____ , 46, 58, 70

6. _____ , _____ , 81, 72, 63

Choose one pattern. Explain in one sentence how you checked its rule.

ADD AND SUBTRACT RULE DETECTIVES - B



Name: ANSWERS Date: _____

ODD ONE OUT

Circle the term that breaks the rule. Write the correction and the rule.

1. 18, 27, 36, (46), 54

Correction: 45 Rule: add 9

2. 120, 105, 90, 75, (55)

Correction: 60 Rule: subtract 15

3. 44, 50, 56, (63), 68

Correction: 62 Rule: add 6

4. 97, 88, 79, (62)

Correction: 71 Rule: subtract 9

BUILD BACKWARDS

Complete the two terms before each pattern.

5. 22 , 34 , 46, 58, 70

6. 99 , 90 , 81, 72, 63

Choose one pattern. Explain in one sentence how you checked its rule.

I compared neighbouring terms and checked that the same change happened each time.

Name: _____ Date: _____

MULTIPLICATIVE PATTERN BUILDERS - A

Write the next two terms and the rule for each pattern.

1. 2, 6, 18, 54 ☐ ☐ Rule: _____

2. 5, 10, 20, 40 ☐ ☐ Rule: _____

3. 4, 16, 64, 256 ☐ ☐ Rule: _____

4. 3, 15, 75, 375 ☐ ☐ Rule: _____

5. 7, 14, 28, ☐ ☐ Rule: _____

6. 6, 18, 54, 162 ☐ ☐ Rule: _____

THINK ABOUT IT

How is a multiply pattern different from an add pattern?

Name: ANSWERS Date: _____

MULTIPLICATIVE PATTERN BUILDERS - A

Write the next two terms and the rule for each pattern.

1. 2, 6, 18, 54 — 162, 486 — Rule: multiply by 3.

2. 5, 10, 20, 40 — 80, 160 — Rule: multiply by 2.

3. 4, 16, 64, 256 — 1024, 4096 — Rule: multiply by 4.

4. 3, 15, 75, 375 — 1875, 9375 — Rule: multiply by 5.

5. 7, 14, 28, ___ — 112, 224 — Rule: multiply by 2.

6. 6, 18, 54, 162 — 486, 1458 — Rule: multiply by 3.

THINK ABOUT IT

How is a multiply pattern different from an add pattern?

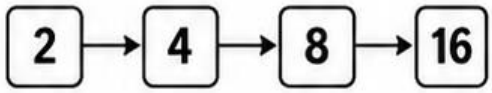
An add pattern changes by the same difference.

A multiply pattern changes by the same factor.

Name: _____ Date: _____

MULTIPLICATIVE PATTERN BUILDERS - B

1. ADD OR MULTIPLY?



Instruction: Name the operation and state the rule.

1. 4, 8, 12, 16

   Operation: _____ Rule: _____

2. 4, 8, 16, 32

   Operation: _____ Rule: _____

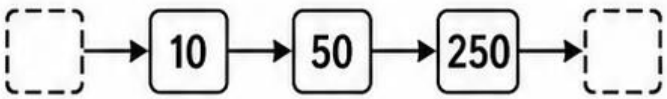
3. 6, 12, 18, 24

   Operation: _____ Rule: _____

4. 6, 12, 24, 48

   Operation: _____ Rule: _____

2. MISSING TERMS:



5. 3, _____, 27, 81, _____

6. _____, 10, 50, 250, _____

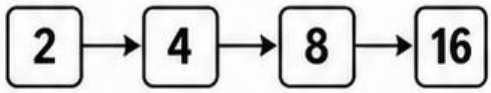
3. ERROR ANALYSIS

Asha says 5, 10, 20, 30 multiplies by 2. Is she correct? Explain and correct the pattern.

Name: ANSWERS Date: _____

MULTIPLICATIVE PATTERN BUILDERS - B

1. ADD OR MULTIPLY?



Instruction: Name the operation and state the rule.

1. 4, 8, 12, 16

   Operation: add Rule: add 4

2. 4, 8, 16, 32

   Operation: multiply Rule: multiply by 2

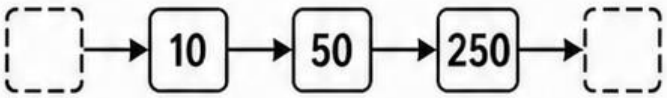
3. 6, 12, 18, 24

   Operation: add Rule: add 6

4. 6, 12, 24, 48

   Operation: multiply Rule: multiply by 2

2. MISSING TERMS:



5. 3, 9, 27, 81, 243

6. 2, 10, 50, 250, 1250

3. ERROR ANALYSIS

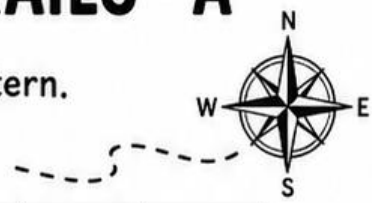
Asha says 5, 10, 20, 30 multiplies by 2. Is she correct? Explain and correct the pattern.

No. The step from 20 to 30 is not multiply by 2. The corrected pattern is 5, 10, 20, 40.

Name: _____ Date: _____

HUNDREDS CHART PATTERN TRAILS - A

Shade each sequence in a different pencil pattern.
Write the next three terms and the rule.



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

		Next three terms	Rule
1.	6, 15, 24, 33	_____, _____, _____	_____
2.	94, 84, 74, 64	_____, _____, _____	_____
3.	13, 24, 35, 46	_____, _____, _____	_____
4.	82, 73, 64, 55	_____, _____, _____	_____

Name: ANSWERS Date: _____

HUNDREDS CHART PATTERN TRAILS - A

Shade each sequence in a different pencil pattern.
Write the next three terms and the rule.

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

		Next three terms	Rule
1.	6, 15, 24, 33	42, 51, 60	add 9
2.	94, 84, 74, 64	54, 44, 34	subtract 10
3.	13, 24, 35, 46	57, 68, 79	add 11
4.	82, 73, 64, 55	46, 37, 28	subtract 9

Name: _____ Date: _____

HUNDREDS CHART PATTERN TRAILS - B

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	3	39	40
41	42	43	44	45	46	47		49	50
51	52	53	54	55	56	57		59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	7	7	78	79	80
81	82	83	84	8	6	87	88	89	90
91	92	93	4	95	96	97	98	99	100

1. Start at 8. Add for terms. Trace and list the terms.

2. Start at 97. Subtract 11 for seven terms. Trace and list the terms.

3. What stays the same about each move? What changes at a row boundary?

_____

_____

_____

_____

Name: ANSWERS Date: _____

HUNDREDS CHART PATTERN TRAILS - B

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	3	39	40
41	42	43	44	45	46	47		49	50
51	52	53	54	55	56	57		59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	7	7	78	79	80
81	82	83	84	8	6	87	88	89	90
91	92	93	4	95	96	97	98	99	100

1. Start at 8. Add for terms. Trace and list the terms.

8	1	26	35	44	53	62

2. Start at 97. Subtract 11 for seven terms. Trace and list the terms.

97	86	75	64	53	42	31

3. What stays the same about each move? What changes at a row boundary?

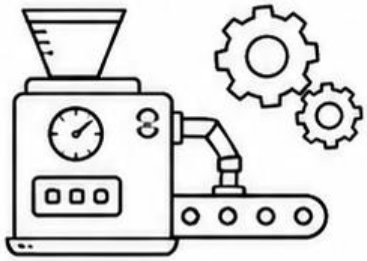
The number changes by the same amount each step. At a row boundary the trail moves to a new row and its column position changes.

_____

_____

Name: _____ Date: _____

INPUT-OUTPUT RULE MACHINES



Find each rule. Complete the missing output.

1.

INPUT	OUTPUT	RULE
2	14	_____
4	28	
6	42	
9		_____

2.

INPUT	OUTPUT	RULE
8	11	_____
15	18	
23	26	
40		_____

3.

INPUT	OUTPUT	RULE
20	5	_____
36	9	
48	12	
60		_____

4.

INPUT	OUTPUT	RULE
7	35	_____
11	55	
14	70	
18		_____

5.

INPUT	OUTPUT	RULE
19	13	_____
28	22	
41	35	
55		_____

6.

INPUT	OUTPUT	RULE
3	24	_____
5	40	
9	72	
12		_____

7.

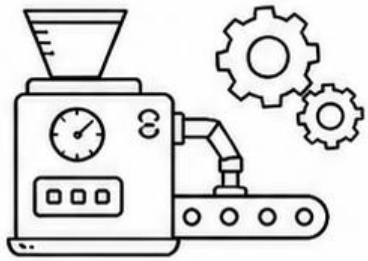
INPUT	OUTPUT	RULE
16	8	_____
30	15	
44	22	
70		_____

8.

INPUT	OUTPUT	RULE
6	18	_____
13	39	
25	75	
31		_____

Name: ANSWERS Date: _____

INPUT-OUTPUT RULE MACHINES



Find each rule. Complete the missing output.

1.

INPUT	OUTPUT	RULE
2	14	× 7
4	28	
6	42	
9	63	

2.

INPUT	OUTPUT	RULE
8	11	+ 3
15	18	
23	26	
40	43	

3.

INPUT	OUTPUT	RULE
20	5	÷ 4
36	9	
48	12	
60	15	

4.

INPUT	OUTPUT	RULE
7	35	× 5
11	55	
14	70	
18	90	

5.

INPUT	OUTPUT	RULE
19	13	− 6
28	22	
41	35	
55	49	

6.

INPUT	OUTPUT	RULE
3	24	× 8
5	40	
9	72	
12	96	

7.

INPUT	OUTPUT	RULE
16	8	÷ 2
30	15	
44	22	
70	35	

8.

INPUT	OUTPUT	RULE
6	18	× 3
13	39	
25	75	
31	93	

Name: _____ Date: _____

CREATE, TEST AND EXPLAIN

1 Create six terms beginning at 12 using an add rule.

Terms:

Rule: _____

2 Create five terms beginning at 3 using a multiply rule.

Terms:

Rule: _____

3 Create a subtraction pattern that includes 4 and ends below 30.

Terms:

Rule: _____

4 Write a four-step input-output machine rule that a partner can test.

INPUT	OUTPUT

Rule: _____

PROVE YOUR RULE

How can someone prove that your rule works for every term shown?

_____

_____

_____

_____

Name: SUGGESTED ANSWERS Date: _____

CREATE, TEST AND EXPLAIN

1 Create six terms beginning at 12 using an add rule.

Terms:

12	17	22	27	32	37

Rule: add 5

2 Create five terms beginning at 3 using a multiply rule.

Terms:

3	6	12	24	48

Rule: multiply by 2

3 Create a subtraction pattern that includes 24 and ends below 30.

Terms:

64	56	48	40	32	24

Rule: subtract 8

4 Write a four-term input-output machine rule that a partner can test.

INPUT	OUTPUT
2	8
5	20
7	28
9	36

Rule: multiply by 4

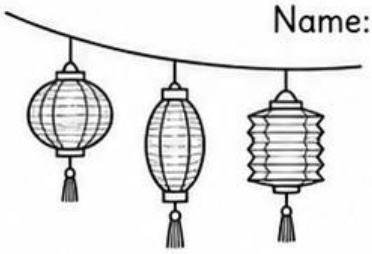
PROVE YOUR RULE

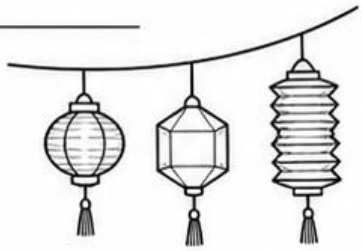
How can someone prove that your rule works for every term shown?

Apply the same rule between every pair of terms, or to every input, and check that each result matches.

FESTIVAL LIGHT PATTERN INVESTIGATION - PART A

Name: _____ Date: _____





A festival team programs rows of lights using number patterns. Solve each programming challenge and show your reasoning.

1 CONTINUE AND NAME THE RULE

a. 18, 27, 36, 45, ___, ___ Rule: _____

b. 120, 108, 96, 84, ___, ___ Rule: _____

2 Compare 5, 10, 15, 20 with 5, 10, 20, 40. Explain why the rules are different.

_____

_____

_____

_____

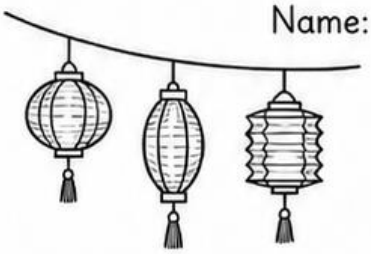
3 Identify and correct the faulty term: 14, 22, 30, 39, 46.

Faulty term: _____ Correction: _____ Rule: _____

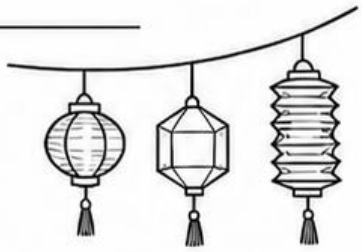
4 Row 1 has 6 lights. Each new row has 7 more lights. How many lights are in row 9? Show your reasoning.

FESTIVAL LIGHT PATTERN INVESTIGATION - PART A

Name: ANSWERS Date: _____



A festival team programs rows of lights using number patterns. Solve each programming challenge and show your reasoning.



1 CONTINUE AND NAME THE RULE

a. 18, 27, 36, 45, 54, 63 Rule: add 9

b. 120, 108, 96, 84, 72, 60 Rule: subtract 12

2 Compare 5, 10, 15, 20 with 5, 10, 20, 40. Explain why the rules are different.

The first pattern adds 5 each time. The second pattern doubles each term (×2).

3 Identify and correct the faulty term: 14, 22, 30, 39, 46.

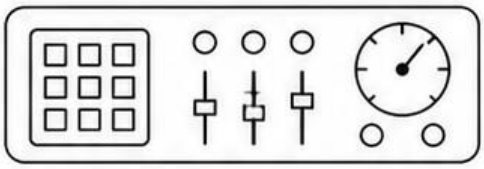
Faulty term: 39 Correction: 38 Rule: add 8

4 Row 1 has 6 lights. Each new row has 7 more lights. How many lights are in row 9? Show your reasoning.

Row 9 = 6 + (8 × 7) = 62 lights.

FESTIVAL LIGHT PATTERN INVESTIGATION - PART B

Name: _____ Date: _____



5. CONTROL PANEL

Input	Output
2	16
4	32
7	56
10	80
13	_____

Rule: _____

Output for 13: _____

6. REVERSE THE MACHINE

The rule is multiply by 6. The output is 54. Find the input and explain.

Answer (input): _____

7. DESIGN A LIGHT PATTERN

Create a five-term pattern beginning at 9 with one repeated rule. Then find term 8.

Term 1	Term 2	Term 3	Term 4	Term 5

Rule: _____ Term 8: _____

Show your working.

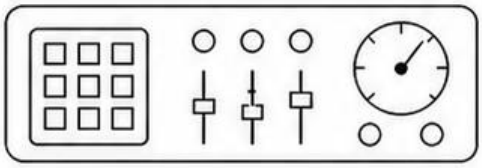
8. CHECK THE CLAIM

Explain two ways to check that a claimed rule is correct.

SELF-CHECK ☐ I named the rule ☐ I tested every term ☐ I explained my thinking

FESTIVAL LIGHT PATTERN INVESTIGATION - PART B

Name: ANSWERS Date: _____



5. CONTROL PANEL

Input	Output
2	16
4	32
7	56
10	80
13	104

Rule: multiply by 8 (×8)

Output for 13: 104

6. REVERSE THE MACHINE

The rule is multiply by 6. The output is 54. Find the input and explain.

Answer (input): 9

54 ÷ 6 = 9.

7. DESIGN A LIGHT PATTERN

Create a five-term pattern beginning with 9 with one repeated rule. Then find term 8.

Term 1	Term 2	Term 3	Term 4	Term 5
9	15	21	27	33

Rule: add Term 8: 51

Show your working.

33, 39, 45, 51.

8. CHECK THE CLAIM

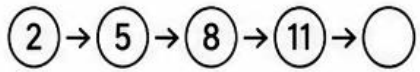
Explain two ways to check that a claimed rule is correct.

Compare neighbouring terms to identify the change.

Test the rule on every pair, then reverse-check it.

SELF-CHECK ☑ I named the rule ☑ I tested every term ☑ I explained my thinking

NUMBER PATTERNS YEAR 4 RUBRIC



CRITERION	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Identifies a repeated rule	Notices a change with support.	Identifies a simple rule with prompts.	Identifies repeated rules accurately.	Identifies mixed rules independently.	Generalises and justifies rules.
Continues and completes patterns	Continues one step with support.	Continues familiar patterns.	Completes missing terms accurately.	Works forwards and backwards.	Solves unfamiliar patterns.
Uses additive and multiplicative reasoning	Uses one operation with support.	Recognises add and subtract rules.	Chooses add, subtract multiply	Compares operations and explains.	Connects operations flexibly.
Interprets input-output relationships	Matches a pair with support.	Tests a given rule.	Finds a rule from several pairs.	Finds missing inputs or outputs.	Creates and proves machine rules.
Creates a valid pattern	Copies a model with support.	Creates a simple valid pattern.	Creates and labels a clear rule.	Creates a challenge and tests it.	Creates complex valid patterns.
Explains and checks reasoning	Gives a partial explanation.	Names one checking step.	Uses terms as evidence.	Explains and checks every step.	Compares methods and justifies.

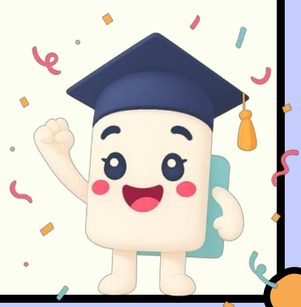
Number Patterns

Learning Goal

Identify the rule that changes one term to the next.

Continue additive, subtractive and multiplicative patterns.

Create a pattern, test it and explain your reasoning.



Terms, Rules and Changes

Each number in a pattern is a term.

The rule tells how to move from one term to the next.

Compare consecutive terms. Name the operation and amount.

8, 25, 32, 39 ... uses add 7.

Compare Neighbouring Terms

Ask: Wha[illegible]hang[illegible] fro[illegible] 18 to[illegible]?

[illegible] – 18 =

[illegible]ver[illegible]air: 32 – [illegible]25 = 7 and 39 – 32 = 7.

[illegible]an[illegible]nge[illegible]ch time → the rule is add 7.

Additive Pattern +7

Start at [illegible] and add 7 each ti[illegible]

[illegible] → 25 [illegible]2 → 39 [illegible] → 53

Pre[illegible]t th[illegible]next [illegible]rm, the[illegible]verify it with subtraction.

[illegible]46 = [illegible]so the rule still works.

Subtractive Pattern: −8

96 → 8 → 80 2 → 4 → 5

Each ter s 8 l than t rm before it.

neck: 7 − 8 = 64.

S tr pat s can cross a multiple of ten.

Find Missing Terms

13, ____, 27, 34, ____

The difference is 7, so the missing terms are 20 and 41.

Work forwards and backwards to test both gaps.

13 + 7 = 20 and 34 + 7 = 41.

Hundreds Chart Structure

Move right one square: add 1.

Move left one square: subtract 1.

Move down one row: add 10.

Move up one row: subtract 10.

Diagonal moves combine a row move and a column move.

Trace a +9 Trail

8 → 17 → 3 → 44 → 53 →

On a hundreds chart, +9 usually moves down one row and left one.

At a r bo dar he valu still increases by exactly 9.

Use ti nu —no e picture alone—to verify the rule.

Multiplicative Patte[illegible] ×3

2 → 18 [illegible]54 → [illegible]62

Each ter[illegible]s thr[illegible]times t[illegible]revious term.

[illegible]hec[illegible]ith divi[illegible]on: 54 ÷ 18 = 3.

Multi[illegible]cati[illegible]tter[illegible]grow by a factor, not a difference.

Add or Multiply?

4, 8, 12, 16 adds 4 each time.

4, 8, 16, 32 multiplies by 2 each time.

Equal differences signal an additive rule.

Equal factors signal a multiplicative rule.

Input-Output Rule Machines

An input enters, one rule is applied, and an output leaves.

Test every pair before naming the rule.

Input 7 → Output 35 suggests ×5.

Input 11 → Output 55 confirms ×5.

Predictable Pattern Ma[illegible]

p[illegible] mu[illegible]ly b[illegible] 7.

[illegible] → 14 [illegible]4 → 28 [illegible] → 42

9 [illegible]63

Use [illegible]ew[illegible] to t[illegible]whether the same rule still works.

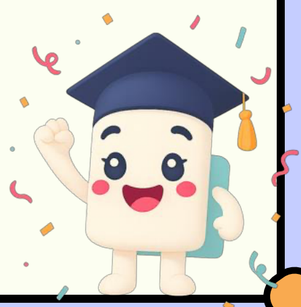
Reverse the Rule

If the rule is ×6 and the output is 54, undo the rule.

54 ÷ 6 = 9

So the missing input is 9.

Multiplication and division are inverse operations.



Spot and Repair an Error

22, 39,

intended rule dd 8.

8 , so 39 s the faulty term.

cted ttern: 14, 22, 30, 38, 46.

Create a Pattern Challenge

Choose a starting number and one repeated rule.

Write at least four terms.

Hide the rule for a partner to find.

Ask your partner to name and prove the rule.

Check that every neighbouring pair follows it.

Explain and Check

A strong explanation names the operation and amount.

It uses two or more pieces of evidence.

It predicts a new term and checks the prediction.

For inverse check, undo the operation.

Name rule + every term + clear evidence = convincing reasoning.

Well Done!

Number Patterns Quiz

Question 1 - Multiple Choice

What comes ne[illegible]17, 2[illegible]31, 3[illegible]___

A. 4[illegible]

B. 44

[illegible]46

D. 52

Answer I

A. 45

The difference between neighbouring terms is +7.

38 + 7 = 45.

Question 2 – Short Answer

Continue the pattern and name the rule:

84, 76, 68, ____, ____

Answer 2

60, 5

le: subtract 8.

68 − = 6 and 60 − 8 = 52.

Question 3 – True or False

3, 9, 27, ... follows the rule multiply by 3.

True or false? Explain how you know.

Answer 3

True.

Each term is three times the previous term.

27 × 3 = 81 confirms the rule.

Question 4 - Multiple Choice

What are the next two terms?

11, 23, 35, 47, _____, _____

58, 69

B. 59, 71

C. 60, 72

D. 48, 49

Answer 4

B. 59,

Th[illegible]ated rule is add 12.

47 + [illegible] = 5[illegible]nd 59 + 12 = 71.

Question 5 – Short Answer

Comple[illegible] the p[illegible]ttern an[illegible]ate the rule:

[illegible]4, 21, [illegible], 35, ____

Answer 5

28, 4

Rule: add 7.

Ev y ne bo g pair differs by 7.

Question 6 - Multiple Choice

A machine multiplies ev y inp t by

What is th utpu r a input 8?

A. 14

B. 12

C. 48

D. 56

Answer 6

C. 48

8 × 6 = 48.

Question 7 – True or False

Moving down one row on a standard hundreds chart adds 10.

True or false? Explain.

Answer 7

True.

Each number directly below is 10 greater.

For example, 24 + 10 = 34.

Question 8 - Short Answer

Find the correct thirty-fifth term:

, 12, 19, 27, 35

Then write the intended rule.

Answer 8

27 ...fault; it s... ...be 26.

...Rule: add 7.

C...rect ...pe... ...n: 5, 12, 19, 26, 33.

Question 9 - Multiple Choice

What are the next two terms?

2, 1[illegible]0, 2[illegible], _____, _____

A. [illegible]250, 62[illegible]

B. 500, 1000

C. 255, 260

D. 750, 1250

Answer 9

A. 1250, [illegible]

[illegible]e is multiply by 5.

2[illegible] × 5 = [illegible]d 1250 × 5 = 6250.

Question 10 - Short Answer

Create a four-term pattern beginning at 9.

Use the specified rule and 6 and name the rule.

Answer 10

One correct pattern is 9, 15, 21, 27.

Rule: add 6.

Other answers are correct only if every step adds 6.

Well Done!