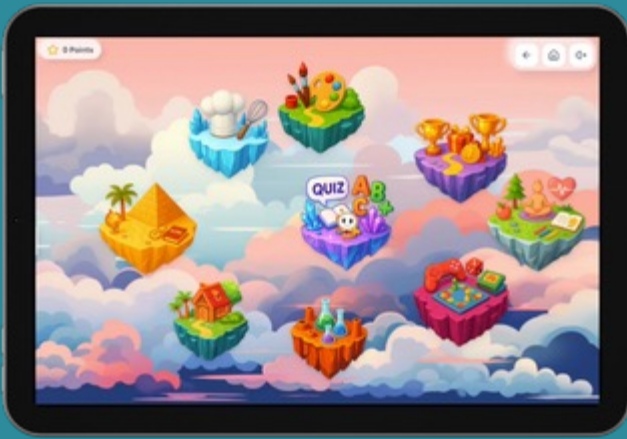


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## Number Sequences - Year 4

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# NUMBER SEQUENCE DETECTIVES



A number sequence is an ordered list of numbers that follows a rule.

1.

## NOTICE

Look closely at the terms.



2.

## FIND THE CHANGE

Compare each term with the next.



3.

## TEST THE RULE

Check that the same change works every time.



4.

## CONTINUE

Use the rule to find the next terms.



## EXAMPLE

12, 18, 24, 30, 36



**Rule:** add 6 each time.



# MULTIPLIES MAP

MULTIPLES OF 3:

3

6

9

12

15

18

21

24

27

30

MULTIPLES OF 4:

4

8

12

16

20

24

28

32

36

40

MULTIPLES OF 6:

6

12

18

24

30

36

42

48

54

60

MULTIPLES OF 7:

7

14

21

28

35

42

49

56

63

70

MULTIPLES OF 8:

8

16

24

32

40

48

56

64

72

80

MULTIPLES OF 9:

9

18

27

36

45

54

63

72

81

90

.....





# SEQUENCE SLEUTH TASK CARDS • PAGE 1



CARD 1

6, 9, 12, 15, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 2

8, 12, 16, 20, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 3

12, 18, 24, 30, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 4

14, 21, 28, 35, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 5

16, 24, 32, 40, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 6

18, 27, 36, 45, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 7

45, 39, 33, 27, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

CARD 8

64, 56, 48, 40, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_





# SEQUENCE SLEUTH TASK CARDS • PAGE 2



## CARD 9



24, 28, 32, 36, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 10



27, 30, 33, 36, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 11



35, 42, 49, 56, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 12



54, 63, 72, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 13



72, 66, 60, 54, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 14



90, 81, 72, 63, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 15



28, 36, 44, 52, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_



## CARD 16



40, 36, 32, 28, \_\_, \_\_

Next two terms: \_\_\_\_

Rule: \_\_\_\_

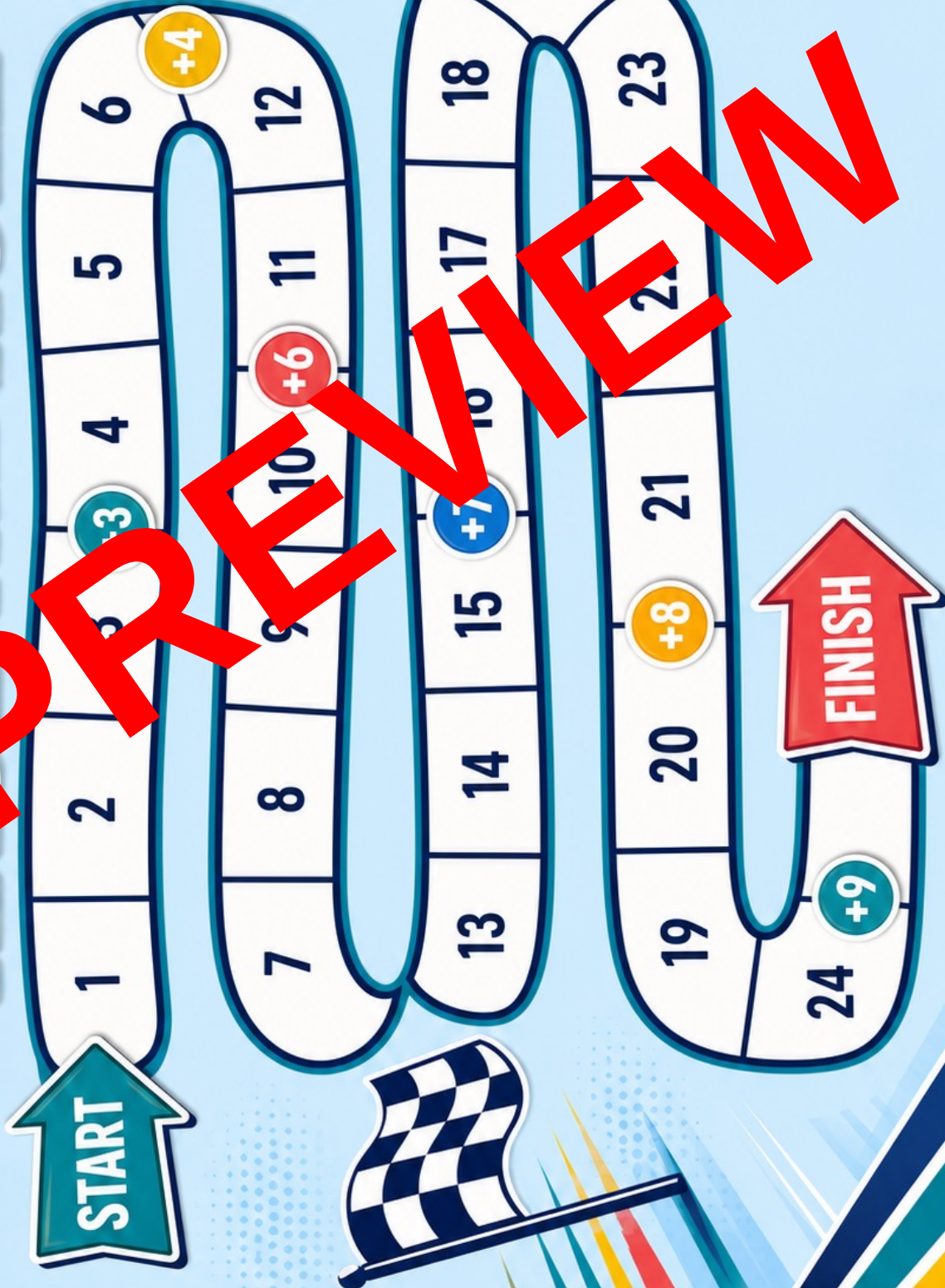




# RACE THE RULE



1. Shuffle the cards and place them face down.
2. Roll a die and move along the path.
3. Draw a card. Solve it correctly to stay; otherwise move back one space.







# RACE THE RULE CARDS



CARD 1



3, 6, 9, 12, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 2



4, 8, 12, 16, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 3



6, 12, 18, 24, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 4



7, 14, 21, 28, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 5



8, 16, 24, 32, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 6



9, 18, 27, 36, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 7



15, 18, 21, 24, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 8



20, 24, 28, 32, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 9



30, 36, 42, 48, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 10



42, 49, 56, 63, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 11



48, 56, 64, 72, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 12



54, 63, 72, 81, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 13



36, 33, 30, 27, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 14



52, 48, 44, 40, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 15



66, 60, 54, 48, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 16



70, 63, 56, 49, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 17



80, 72, 64, 56, \_\_, \_\_

Rule: \_\_\_\_\_

CARD 18



99, 90, 81, 72, \_\_, \_\_

Rule: \_\_\_\_\_





# MULTIPLES MATCH • SEQUENCE CARDS

CARD

**A**



3, 6, 9, 12, ...

CARD

**B**



4, 8, 12, 16, ...

CARD

**C**



6, 12, 18, 24, ...

CARD

**D**



7, 14, 21, 28, ...

CARD

**E**



8, 16, 24, 32, ...

CARD

**F**



9, 18, 27, 36, ...

CARD

**G**



30, 27, 24, 21, ...

CARD

**H**



40, 36, 32, 28, ...

CARD

**I**



60, 54, 48, 42, ...

CARD

**J**



70, 63, 56, 49, ...

CARD

**K**



80, 72, 64, 56, ...

CARD

**L**



90, 81, 72, 63, ...



# MULTIPLES MATCH • RULE CARDS

CARD  
1

RULE:

**ADD 3**

NEXT:

**15, 18**

CARD  
2

RULE:

**ADD 4**

NEXT:

**20, 24**

CARD  
3

RULE:

**ADD 6**

NEXT:

**30, 36**

CARD  
4

RULE:

**ADD 7**

NEXT:

**35, 42**

CARD  
5

RULE:

**ADD 8**

NEXT:

**40, 48**

CARD  
6

RULE:

**ADD 9**

NEXT:

**45, 54**

CARD  
7

RULE:

**SUBTRACT 3**

NEXT:

**18, 15**

CARD  
8

RULE:

**SUBTRACT 4**

NEXT:

**24, 20**

CARD  
9

RULE:

**SUBTRACT 6**

NEXT:

**36, 30**

CARD  
10

RULE:

**SUBTRACT 7**

NEXT:

**42, 35**

CARD  
11

RULE:

**SUBTRACT 8**

NEXT:

**48, 40**

CARD  
12

RULE:

**SUBTRACT 9**

NEXT:

**54, 45**

# PATTERN PATROL • PAGE 1



Name: \_\_\_\_\_

Write the next two terms. Then state the rule.

1. 4, 7, 10, 13, \_\_, \_\_ Rule: \_\_\_\_\_

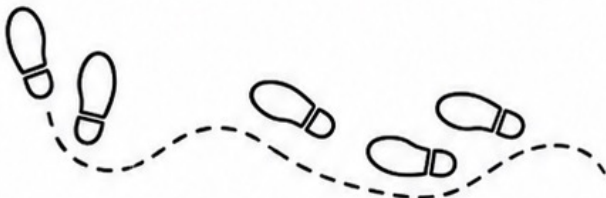
2. 12, 18, 24, 30, \_\_, \_\_ Rule: \_\_\_\_\_

3. 7, 14, 21, 28, \_\_, \_\_ Rule: \_\_\_\_\_

4. 72, 65, 58, 48, \_\_, \_\_ Rule: \_\_\_\_\_

5. 90, 81, 72, 63, \_\_, \_\_ Rule: \_\_\_\_\_

6. 15, 19, 23, 27, \_\_, \_\_ Rule: \_\_\_\_\_





# PATTERN PATROL • PAGE 1



Name: ANSWERS

Write the next two terms. Then state the rule.

1. 4, 7, 10, 13, 16, 19 Rule: add 3

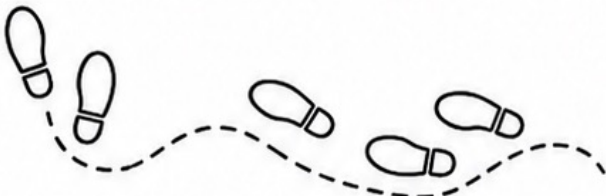
2. 12, 18, 24, 30, 36, 42 Rule: add 6

3. 7, 14, 21, 28, 35, 42 Rule: add 7

4. 72, 64, 56, 48, 40, 32 Rule: subtract 8

5. 90, 81, 72, 63, 54, 45 Rule: subtract 9

6. 15, 19, 23, 27, 31, 35 Rule: add 4



Name: \_\_\_\_\_



## PATTERN PATROL • PAGE 2

Fill every blank. Then state the rule.

1. 6, \_\_, 18, \_\_, 30, \_\_ Rule: \_\_\_\_\_

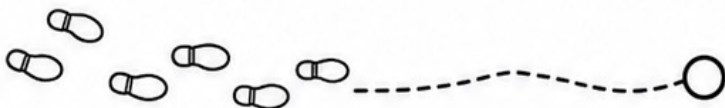
2. \_\_, 16, 24, \_\_, 40, \_\_ Rule: \_\_\_\_\_

3. 63, \_\_, 49, \_\_, 35, \_\_ Rule: \_\_\_\_\_

4. \_\_, 50, 45, \_\_, 27, \_\_ Rule: \_\_\_\_\_

5. 12, \_\_, 20, 24, \_\_, 32 Rule: \_\_\_\_\_

6. 27, 30, \_\_, 36, \_\_, 42 Rule: \_\_\_\_\_





Name: ANSWERS



## PATTERN PATROL • PAGE 2

Fill every blank. Then state the rule.

1. 6, 12, 18, 24, 30, 36 Rule: add 6

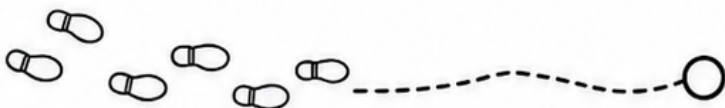
2. 8, 16, 24, 32, 40, 48 Rule: add 8

3. 63, 56, 49, 42, 35, 28 Rule: subtract 7

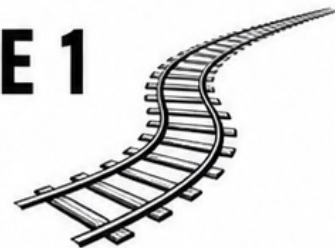
4. 63, 54, 45, 36, 27, 18 Rule: subtract 9

5. 12, 16, 20, 24, 28, 32 Rule: add 4

6. 27, 30, 33, 36, 39, 42 Rule: add 3



# MULTIPLE TRACKS • PAGE 1



Name: \_\_\_\_\_

Complete each track with the first twelve positive multiples.

## MULTIPLES OF 3

|   |   |  |   |  |   |  |   |  |   |  |   |  |
|---|---|--|---|--|---|--|---|--|---|--|---|--|
| 3 | → |  | → |  | → |  | → |  | → |  | → |  |
|   | ← |  | ← |  | ← |  | ← |  | ← |  | ← |  |

## MULTIPLES OF 4

|   |   |  |   |  |   |  |   |  |   |  |   |  |
|---|---|--|---|--|---|--|---|--|---|--|---|--|
| 4 | → |  | → |  | → |  | → |  | → |  | → |  |
|   | ← |  | ← |  | ← |  | ← |  | ← |  | ← |  |

## MULTIPLES OF 6

|   |   |  |   |  |   |  |   |  |   |  |   |  |
|---|---|--|---|--|---|--|---|--|---|--|---|--|
| 6 | → |  | → |  | → |  | → |  | → |  | → |  |
|   | ← |  | ← |  | ← |  | ← |  | ← |  | ← |  |

1. Which numbers appear in both the 3 and 6 tracks?

---

---

---

2. How is the 6 track related to the 3 track?

---

---

---





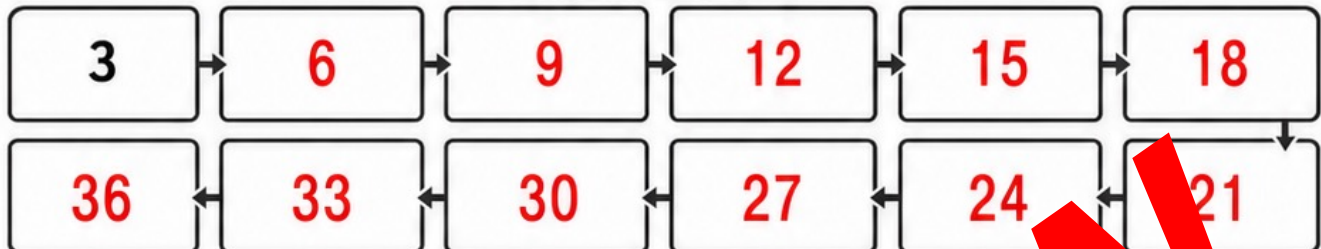
# MULTIPLE TRACKS • PAGE 1



Name: ANSWERS

Complete each track with the first twelve positive multiples.

## MULTIPLES OF 3



## MULTIPLES OF 4



## MULTIPLES OF 6



1. Which numbers appear in both the 3 and 6 tracks?

6, 12, 18, 24, 30 and 36.

2. How is the 6 track related to the 3 track?

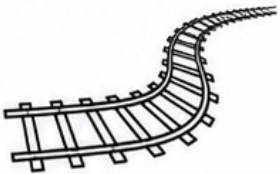
Every multiple of 6 is every second multiple of 3.



# MULTIPLE TRACKS • PAGE 2

Name: \_\_\_\_\_

Complete each track with the first twelve positive multiples.



## MULTIPLES OF 7

|   |   |  |   |  |   |  |   |  |   |  |   |  |
|---|---|--|---|--|---|--|---|--|---|--|---|--|
| 7 | → |  | → |  | → |  | → |  | → |  | → |  |
|   | ← |  | ← |  | ← |  | ← |  | ← |  | ← |  |

## MULTIPLES OF 8

|   |   |  |   |  |   |  |   |  |   |  |   |  |
|---|---|--|---|--|---|--|---|--|---|--|---|--|
| 8 | → |  | → |  | → |  | → |  | → |  | → |  |
|   | ← |  | ← |  | ← |  | ← |  | ← |  | ← |  |

## MULTIPLES OF 9

|   |   |  |   |  |   |  |   |  |   |  |   |  |
|---|---|--|---|--|---|--|---|--|---|--|---|--|
| 9 | → |  | → |  | → |  | → |  | → |  | → |  |
|   | ← |  | ← |  | ← |  | ← |  | ← |  | ← |  |



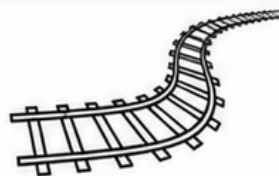
1. Which number appears in both the 7 and 9 tracks?  
\_\_\_\_\_  
\_\_\_\_\_
2. Which number appears in both the 8 and 9 tracks?  
\_\_\_\_\_  
\_\_\_\_\_



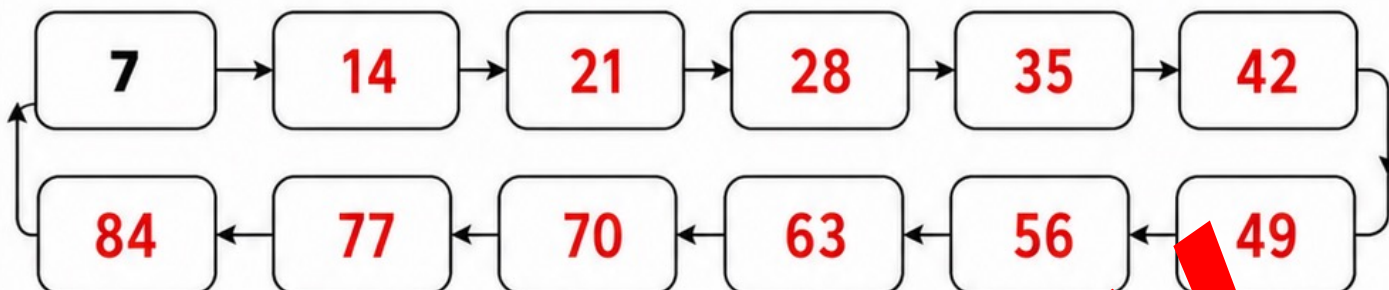
# MULTIPLE TRACKS • PAGE 2

Name: **ANSWERS**

Complete each track with the first twelve positive multiples.



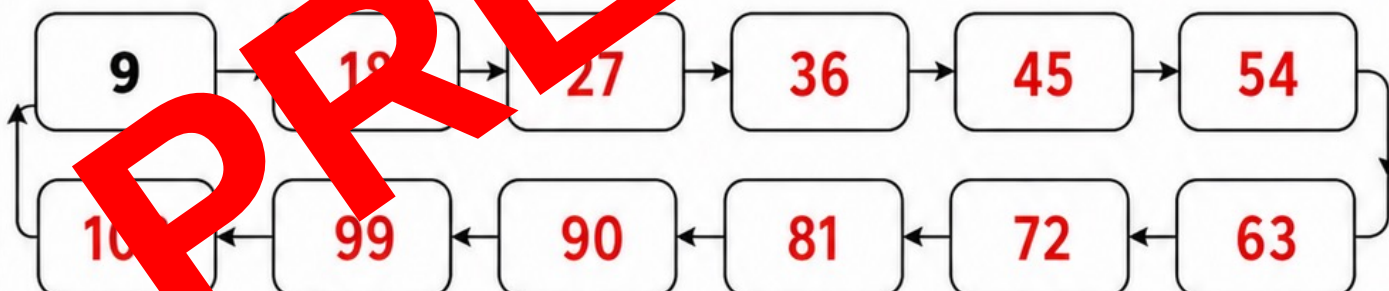
## MULTIPLES OF 7



## MULTIPLES OF 8



## MULTIPLES OF 9



1. Which number appears in both the 7 and 9 tracks?

**63**

2. Which number appears in both the 8 and 9 tracks?

**72**

# MISSING-TERM MYSTERIES • PAGE 1

Name: \_\_\_\_\_



Find the missing term. Then write the rule.

1. 18, 24, \_\_, 36, 42

Rule: \_\_\_\_\_

2. 35, \_\_, 49, 56, 63

Rule: \_\_\_\_\_

3. 64, 56, \_\_, 40, 32

Rule: \_\_\_\_\_

4. 9, 18, 27, \_\_, 45

Rule: \_\_\_\_\_

5. \_\_, 20, 24, 28

Rule: \_\_\_\_\_

6. 51, 48, 45, \_\_, 39

Rule: \_\_\_\_\_

7. 24, 30, 36, 42, \_\_

Rule: \_\_\_\_\_

8. 72, 63, \_\_, 45, 36

Rule: \_\_\_\_\_



# MISSING-TERM MYSTERIES • PAGE 1

Name: ANSWERS



Find the missing term. Then write the rule.

1. 18, 24, 30, 36, 42

Rule: add 6

2. 35, 42, 49, 56, 63

Rule: add 7

3. 64, 56, 48, 40, 32

Rule: subtract 8

4. 9, 18, 27, 36, 45

Rule: add 9

5. 12, 16, 20, 24, 28

Rule: add 4

6. 51, 48, 45, 42, 39

Rule: subtract 3

7. 24, 30, 36, 42, 48

Rule: add 6

8. 72, 63, 54, 45, 36

Rule: subtract 9

# MISSING-TERM MYSTERIES • PAGE 2



Name: \_\_\_\_\_

Solve each clue. Show your sequence and reasoning.

1. Write five terms starting at 18 and adding 6.

2. Write five terms ending at 72 that subtract 9 each time.

3. Write the first six positive multiples of 7.

4. Start both sequences at 1. Write six terms for  $+4$  and six terms for  $+8$ .  
List the shared terms.

5. A sequence is 24, 30, 36, 42. Explain how you know the rule.

6. Create a five-term decreasing sequence using subtract 7. Check each step.



# MISSING-TERM MYSTERIES • PAGE 2

Name: **ANSWERS**



Solve each clue. Show your sequence and reasoning.

1. Write five terms starting at 18 and adding 6.

**18, 24, 30, 36, 42**

2. Write five terms ending at 72 that subtract 9 each time.

**108, 99, 90, 81, 72**

3. Write the first six positive multiples of 7.

**7, 14, 21, 28, 35, 42**

4. Start both sequences at 0. Write six terms for +4 and six terms for +8.  
List the shared terms.

**+4: 0, 4, 8, 12, 16, 20**  
**+8: 0, 8, 16, 24, 32, 40**  
**Shared terms: 0, 8, 16**

5. A sequence is 24, 30, 36, 42. Explain how you know the rule.

**Each term is 6 more than the previous term, so the rule is add 6.**

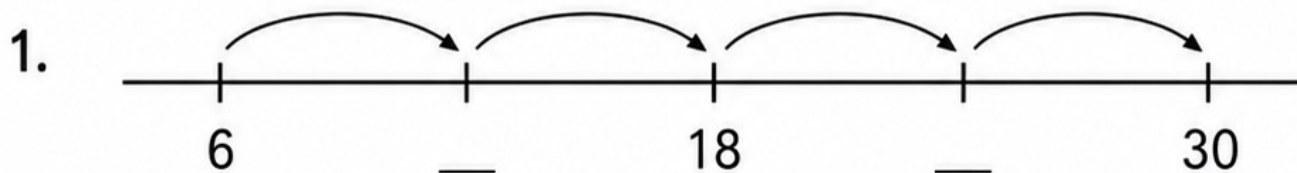
6. Create a five-term decreasing sequence using subtract 7. Check each step.

**Suggested answer: 49, 42, 35, 28, 21. Each step subtracts 7.**

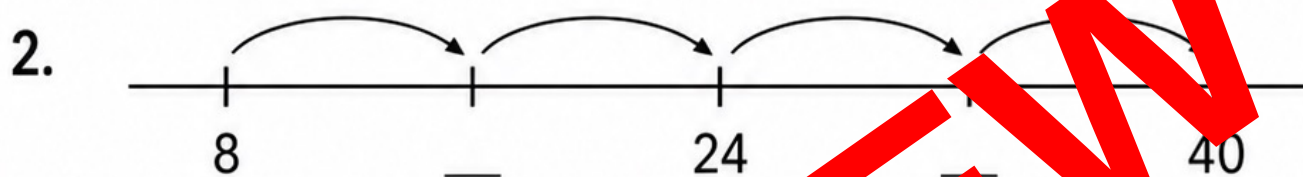
Name: \_\_\_\_\_

# NUMBER LINE MOVES

Label the missing values. Then state the rule.



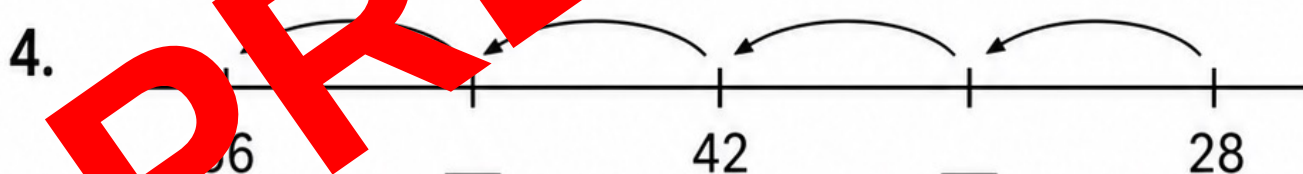
Rule: \_\_\_\_\_



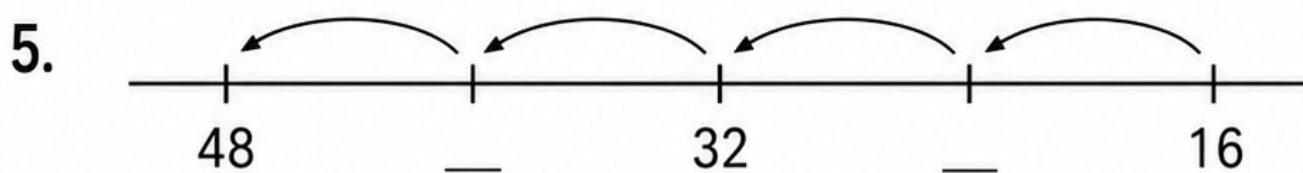
Rule: \_\_\_\_\_



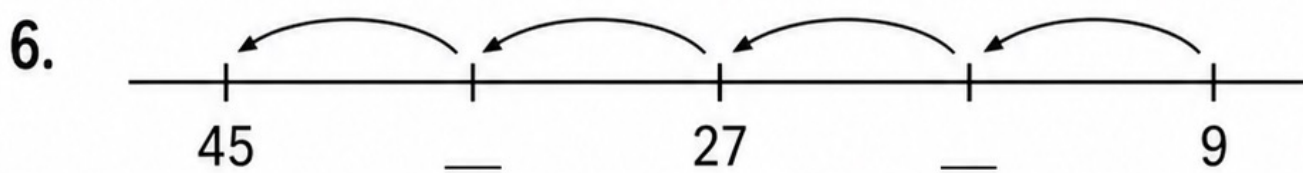
Rule: \_\_\_\_\_



Rule: \_\_\_\_\_



Rule: \_\_\_\_\_



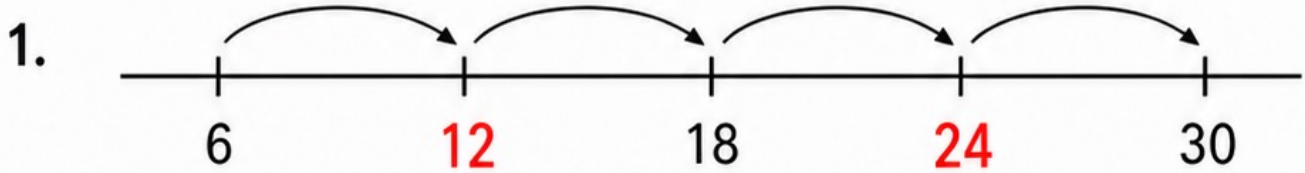
Rule: \_\_\_\_\_



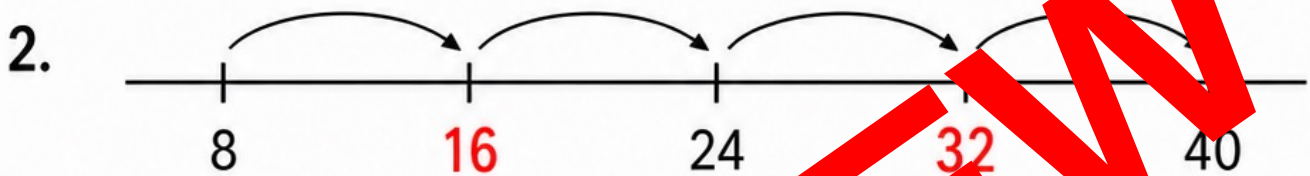
Name: ANSWERS

# NUMBER LINE MOVES

Label the missing values. Then state the rule.



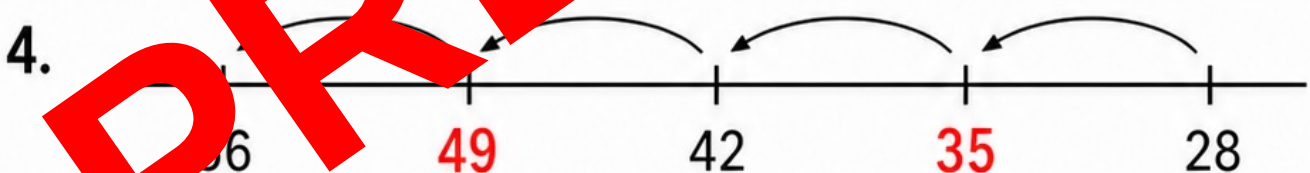
Rule: add 6



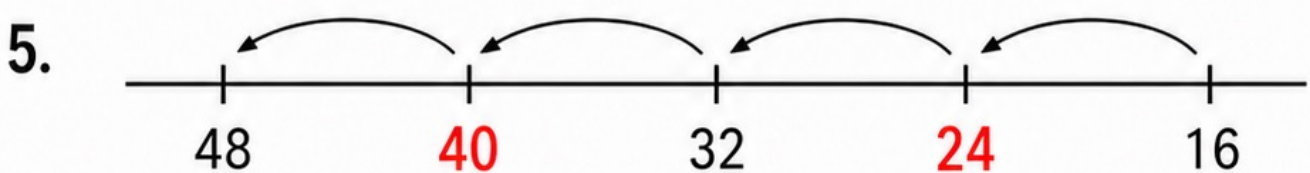
Rule: add 8



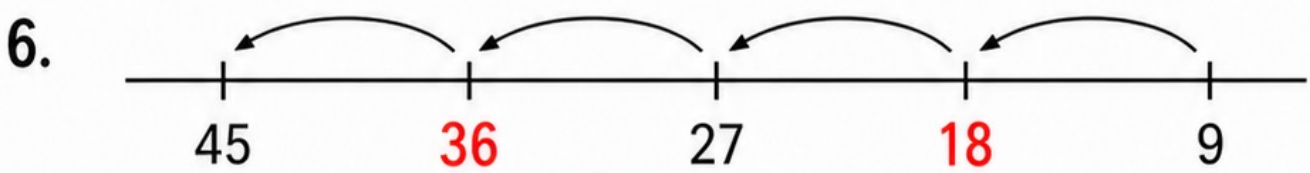
Rule: add 9



Rule: subtract 7

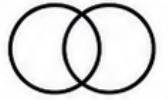


Rule: subtract 8



Rule: subtract 9

# EXPLAIN THE PATTERN • PAGE 1



Name: \_\_\_\_\_

Complete each sequence. Circle shared terms. Explain the relationship.

## +3 AND +6

+3 sequence:

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 3 |  |  |  |  |  |
|---|--|--|--|--|--|

+6 sequence:

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 6 |  |  |  |  |  |
|---|--|--|--|--|--|

Relationship: \_\_\_\_\_

## +4 AND +8

+4 sequence:

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 4 |  |  |  |  |  |
|---|--|--|--|--|--|

+8 sequence:

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

Relationship: \_\_\_\_\_

## +3 AND +9

+3 sequence:

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 3 |  |  |  |  |  |
|---|--|--|--|--|--|

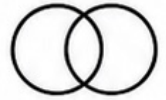
+9 sequence:

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| 9 |  |  |  |  |  |
|---|--|--|--|--|--|

Relationship: \_\_\_\_\_



# EXPLAIN THE PATTERN • PAGE 1



Name: ANSWERS

Complete each sequence. Circle shared terms. Explain the relationship.

## +3 AND +6

+3 sequence:

|   |   |   |    |    |    |
|---|---|---|----|----|----|
| 3 | 6 | 9 | 12 | 15 | 18 |
|---|---|---|----|----|----|

+6 sequence:

|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 6 | 12 | 18 | 24 | 30 | 36 |
|---|----|----|----|----|----|

Relationship: Every +6 term is every second +3 term.

## +4 AND +8

+4 sequence:

|   |   |    |    |    |    |
|---|---|----|----|----|----|
| 4 | 8 | 12 | 16 | 20 | 24 |
|---|---|----|----|----|----|

+8 sequence:

|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 8 | 16 | 24 | 32 | 40 | 48 |
|---|----|----|----|----|----|

Relationship: Every +8 term is every second +4 term.

## +3 AND +9

+3 sequence:

|   |   |   |    |    |    |
|---|---|---|----|----|----|
| 3 | 6 | 9 | 12 | 15 | 18 |
|---|---|---|----|----|----|

+9 sequence:

|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 9 | 18 | 27 | 36 | 45 | 54 |
|---|----|----|----|----|----|

Relationship: Every +9 term is every third +3 term.

Name: \_\_\_\_\_

# EXPLAIN THE PATTERN • PAGE 2



Think carefully. Show your reasoning.

1. Find the error: 6, 12, 18, 25, 30. Explain the error and correct the sequence.

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2. Choose the rule for 32, 40, 48, 56: add 6, add 8, or add 9. Explain your choice.



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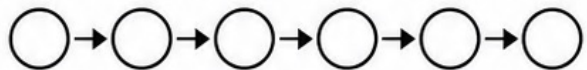
3. Create a six-term sequence that starts at 14 and uses the rule add 7.

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4. Explain why 72 appears in both a +8 sequence and a +9 sequence.

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Name: **ANSWERS**

## EXPLAIN THE PATTERN • PAGE 2



Think carefully. Show your reasoning.

1. Find the error: 6, 12, 18, 25, 30. Explain the error and correct the sequence.

The rule should be add 6.

The error is 25; it should be 24.

Correct sequence: 6, 12, 18, 24, 30.

2. Choose the rule for 32, 40, 48, 56: add 6, add 8, or add 9. Explain your choice.

Add 8, because each term is 8 more than the previous term.



3. Create a six-term sequence that starts at 14 and uses the rule add 7.

14 → 21 → 28 → 35 → 42 → 49

4. Explain why 72 appears in both a +8 sequence and a +9 sequence.

$72 = 8 \times 9$  and  $72 = 9 \times 8$ , so 72 is a multiple of both 8 and 9.

# NUMBER SEQUENCES CHALLENGE • ASSESSMENT PAGE 1

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Complete each task. Show clear number work.

1. State the rule: 3, 6, 9, 12, ... Rule: \_\_\_\_\_
2. Write the next two terms: 16, 20, 24, \_\_\_\_, \_\_\_\_
3. Find the missing term: 12, 18, \_\_\_\_, 30
4. Write the next two terms: 21, 28, 35, \_\_\_\_, \_\_\_\_
5. Find the missing term: 32, 40, \_\_\_\_, 56
6. Continue the increasing sequence: 72, 64, 56, \_\_\_\_, \_\_\_\_
7. State the rule: 18, 27, 36, 45, ... Rule: \_\_\_\_\_
8. Find the missing term: \_\_\_\_, 42, 49, 56
9. Continue backwards: 54, 48, 42, \_\_\_\_, \_\_\_\_
10. Correct the error: 4, 8, 12, 17, 20. Write the correct sequence:  
\_\_\_\_\_



# NUMBER SEQUENCES CHALLENGE • ASSESSMENT PAGE 1

Name: ANSWERS

Date: \_\_\_\_\_

Complete each task. Show clear number work.

1. State the rule: 3, 6, 9, 12, ... Rule: add 3
2. Write the next two terms: 16, 20, 24, \_\_\_\_, 28, 32
3. Find the missing term: 12, 18, 24, 30
4. Write the next two terms: 21, 28, 35, \_\_\_\_, 42, 49
5. Find the missing term: 32, 40, 48, 56
6. Continue the increasing sequence: 72, 64, 56, 48, 40
7. State the rule: 18, 27, 36, 45, ... Rule: add 9
8. Find the missing term: 35, 42, 49, 56
9. Continue backwards: 54, 48, 42, 36, 30
10. Correct the error: 4, 8, 12, 17, 20. Write the correct sequence:  
4, 8, 12, 16, 20

# NUMBER SEQUENCES CHALLENGE • ASSESSMENT PAGE 2

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Apply what you know. Show sequences and explain your thinking.

- 1** Write the first six positive multiples of 6 and the first six positive multiples of 8.  
Identify any shared term.

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- 2** Mia says 7, 14, 21, 29, 35 follows the rule add 7.  
Is she correct? Explain and correct the sequence.

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- 3** Create two different 5-term sequences that both contain 36.  
State the rule for each.

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- 4** A sequence starts at 90 and subtracts 9.  
Will it reach 45? Show the terms and explain.

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# NUMBER SEQUENCES CHALLENGE • ASSESSMENT PAGE 2

Name: **ANSWERS**

Date: \_\_\_\_\_

Apply what you know. Show sequences and explain your thinking.

- 1** Write the first six positive multiples of 6 and the first six positive multiples of 8.  
Identify any shared term.

**Multiples of 6: 6, 12, 18, 24, 30, 36**

**Multiples of 8: 8, 16, 24, 32, 40, 48**

**Shared term: 24**

- 2** Mia says 7, 14, 21, 29, 35 follows the rule add 7.  
Is she correct? Explain and correct the sequence.

**No. 29 should be 28.**

**Correct sequence: 7, 14, 21, 28, 35**

- 3** Create two different six-term sequences that both contain 36.  
State each rule.

**Sequence A: 6, 12, 18, 24, 30, 36. Rule: add 6.**

**Sequence B: 9, 18, 27, 36, 45, 54. Rule: add 9.**

- 4** A sequence starts at 90 and subtracts 9.  
Will it reach 45? Show the terms and explain.

**Yes. 90, 81, 72, 63, 54, 45.**

**The sequence reaches 45 by subtracting 9 each time.**

# NUMBER SEQUENCES - YEAR 4 RUBRIC

Student: \_\_\_\_\_ Date: \_\_\_\_\_

| CRITERIA                     | BEGINNING                                | DEVELOPING                                           | ACHIEVING                                                 | CONFIDENT                                                | EXCEEDING                                          |
|------------------------------|------------------------------------------|------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------|
| <b>IDENTIFY THE RULE</b>     | Needs support to identify the change.    | Identifies simple rules with some prompting.         | Correctly identifies add or subtract rules.               | Identifies rules in increasing and decreasing sequences. | Justifies rules using term-to-term differences.    |
| <b>CONTINUE ACCURATELY</b>   | Continues one term with support.         | Continues familiar sequences with occasional errors. | Continues increasing and decreasing sequences accurately. | Continues longer sequences and self-checks.              | Predicts distant terms accurately and explains.    |
| <b>FIND MISSING TERMS</b>    | Finds a term using a model.              | Finds one missing term in a simple sequence.         | Finds missing terms in more complex sequences.            | Works forwards and backwards to verify.                  | Uses and explains efficient checking strategies.   |
| <b>EXPLAIN RELATIONSHIPS</b> | Gives a limited pattern description.     | Describes visible links with prompting.              | Explains links between related multiples.                 | Uses shared terms to compare sequences.                  | Generalises relationships with clear evidence.     |
| <b>CREATE AND CHECK</b>      | Creates a partial sequence with support. | Creates a sequence but checks inconsistently.        | Creates a correct sequence and states the rule.           | Creates different sequences and checks every term.       | Designs, verifies and explains a complex sequence. |

**PREVIEW**

**Number Sequences**





# Learning Intention

We are learning to identify, describe, continue and create number sequences involving multiples.



# Success Criteria

I can find and use complete number terms, compare related  
quantities and explain how I checked.



# What Is a Number Sequence?

A number sequence is an ordered list that follows a rule.

For example, 9, 13, 17 follows an add 4 rule.





## Find the Rule

**PREVIEW**

... are consecutive terms.

... to 4 is ... and the ... the change must work throughout.



# Multiples Make Sequences

**PREVIEW**

...ing our equal groups creates multiples.  
... 8, 16 ... is an add 4 sequence.



# Multiples of 3

**PREVIEW**

3, 6, 9, 12, 15, 18, 21, 24, 27, 30

The sequence has a constant difference of 3 between consecutive terms, and every second term is even.





## Multiples of 4

**PREVIEW**

4, 8, 12, 16, 20, 24, 28, 32, 36, 40

Every term is even.



## Compare 3s and 4s

**PREVIEW**

how did this increase 12, 24 and 36.

These are common multiples of 3 and 4.



# Multiples of 6

**PREVIEW**

6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Every term is even and is also a multiple of 3.





# Multiples of 7

**PREVIEW**

7, 14, 21, 28, 35, 42, 49, 56, 63, 70

The one digit follow a repeating cycle.



## Compare 6s and 7s

**PREVIEW**

Both sequences reach 42.

It can be confirmed by division or repeated addition.



# Multiples of 8

8, 16, 24, 32, 40, 48, 56, 64, 72, 80

Every term is even and every second term is a multiple of 16.





# Multiples of 9

**PREVIEW**

9, 18, 27, 36, 45, 54, 63, 72, 81, 90

The digits of each term add to a multiple of 9.



# Compare 8s and 9s

**PREVIEW**

7 is a shared term.

Related sequences can cross even when their rules are different.



# Overlapping Sequences

**PREVIEW**

and 6 overlap at every multiple of 6.  
and overlap at every multiple of 8.





# Missing Terms

**PREVIEW**

We can work backwards from known terms.

24, 30, —, 42 becomes 24, 30, 36, 42, 48.



# Backwards Sequences

**PREVIEW**

A sequence can subtract.

4, 72, 3, 54 follows a subtract 9 rule.



# Starting at Zero

**PREVIEW**

7 is an even number before the first positive multiple.  
0, 7, 14, 21 follows an add 7 rule.





# Check the Rule

**PREVIEW**

State the rule. Fill every gap.

Correct output that breaks the pattern.



## Explain and Justify

Use because in your explanation.

The rule is  $+8$  because each term is eight more than the previous term.



## Apply the Idea

**PREVIEW**

Find a sequence that contains 24 and 48.  
Can you explain more than one possible rule?



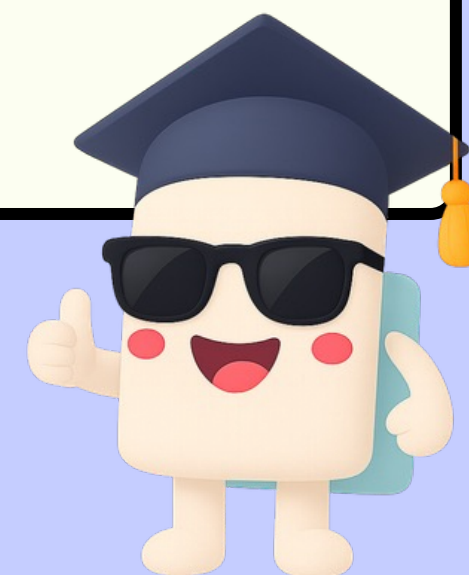
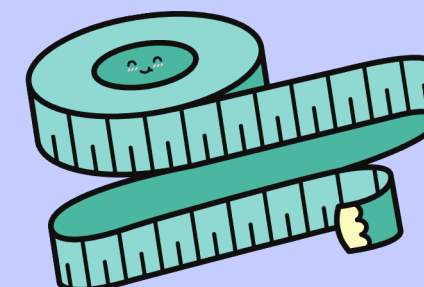
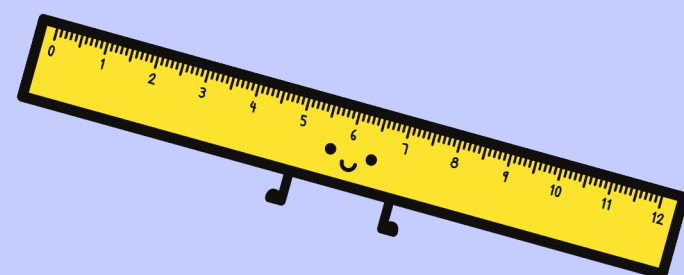
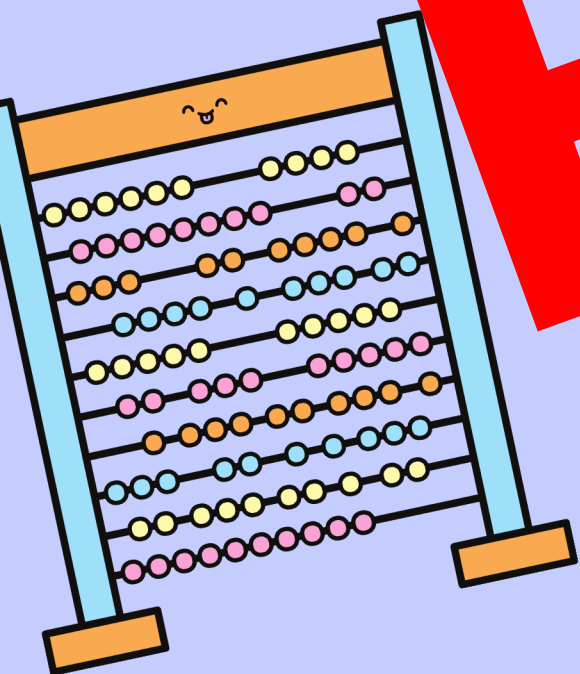
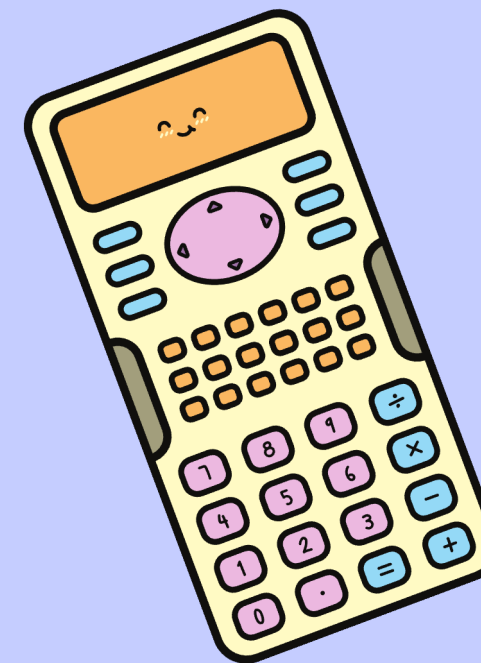
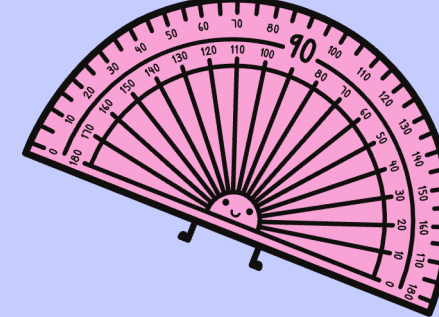
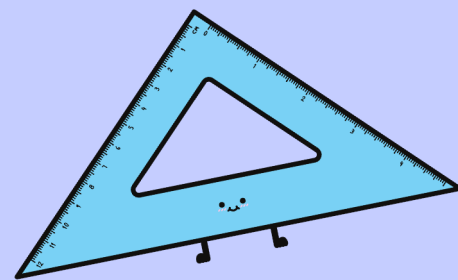
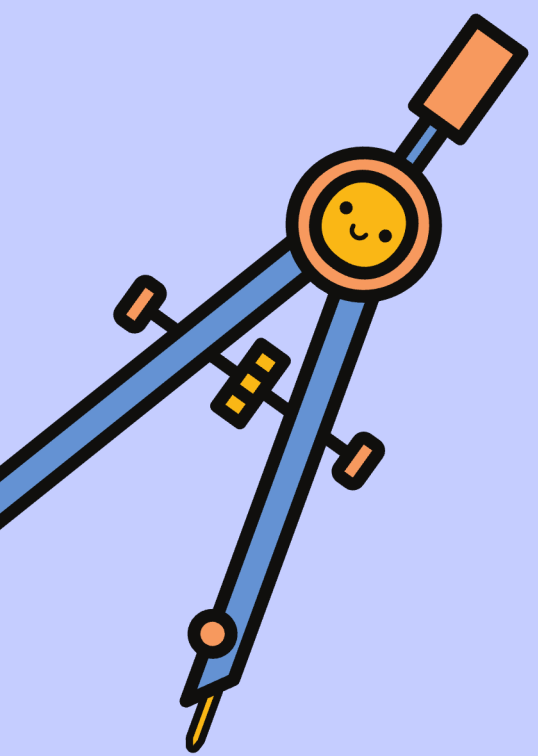


# Review

**PREVIEW**

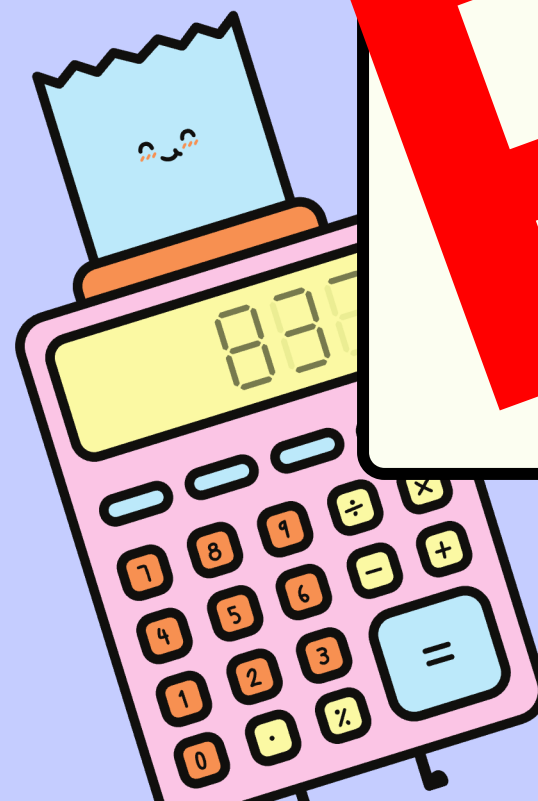
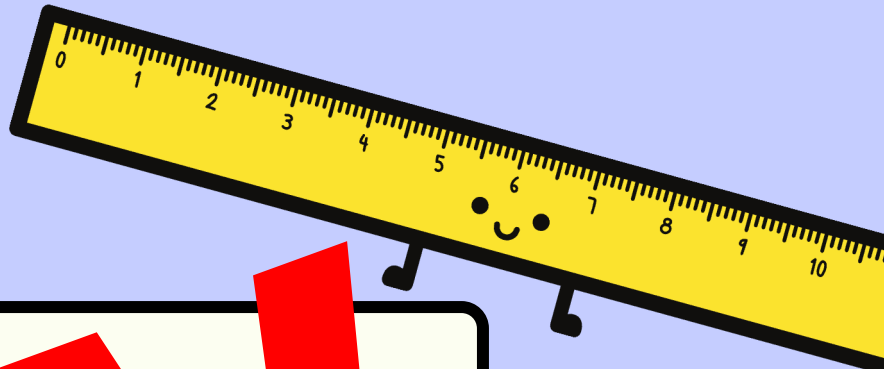
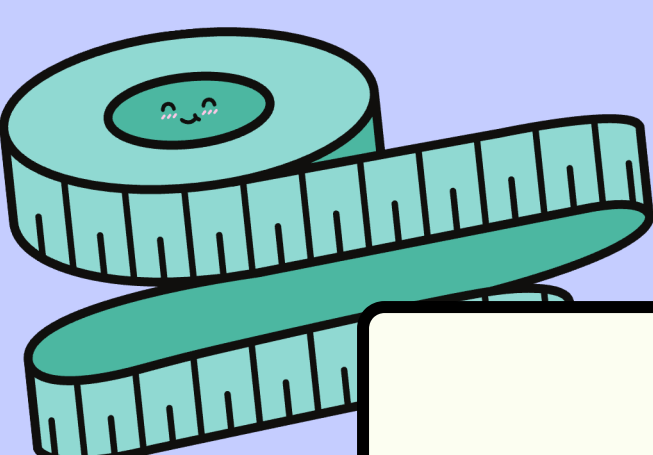
Find the rule for each of the sums. Compare overlaps.  
Create a sequence and check every step.





**PREVIEW**

You are a Number Sequence Detective!



**PREVIEW**

# Number Sequences Quiz



## Question 1

What is the rule for 4, 18, 22, 26?

A. +3      B. +4

C. +6      D. +8





## Answer 1

**PREVIEW**

B. 1

Each term is 4 more than the previous term.



## Question 2

**PREVIEW**

True or False?

27, 36, 45, 54 is a sequence of multiples of 9.



Answer 2

**PREVIEW**

The  
each term increases by 9.



## Question 3

**PREVIEW**

Write the next two terms.

4, 19, 56, —, —





Answer 3

**PREVIEW**

63, 70

the rule is +7.



## Question 4

Complete the sequence, —, —, —, —, —.

A. 44      B. 46

C. 48      D. 50

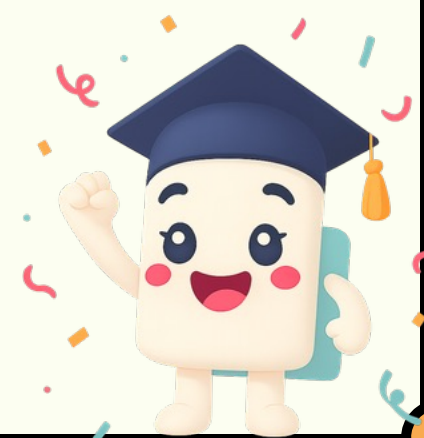


Answer 4

PREVIEW

C. 2

the rule is +8.



## Question 5

**PREVIEW**

True or False?

0 is a both the multiples-of-6 and multiples-of-8 sequences.





## Answer 5

**PREVIEW**

For 2  
60 is a multiple of 5, but it is not a multiple of 8.



## Question 6

**PREVIEW**

Count backwards by 9 from 81.  
Write the next three terms.



Answer 6

PREVIEW

72, 63, 54



## Question 7

Which sequence follows a 15 rule?

A. 11, 16, 21      B. 12, 18, 24, 30

C. 2, 18, 28, 36, 44      D. 9, 18, 27, 36





## Answer 7

**PREVIEW**

B. 12, 18, 24, 30

each term increases by 6.



## Question 8

Continue the sequence with 4 terms, then state the rule.

7, 14, 21, 28, \_\_, \_\_



Answer 8

**PREVIEW**

35, 42

the rule is +7.



## Question 9

**PREVIEW**

True or False?  
8, 12, ... follows a +4 rule.





## Answer 9

**PREVIEW**

For 2  
17 breaks the rule and should be 16.



## Question 10

Complete 10, 24, \_\_, 36, \_\_.

A. 28 and 40      B. 30 and 42

C. 32 and 44      D. 30 and 48



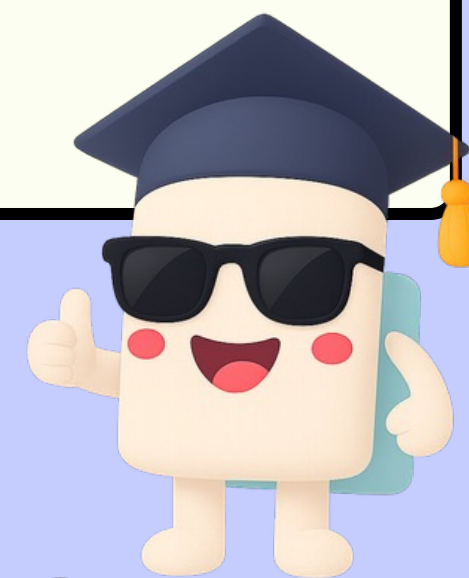
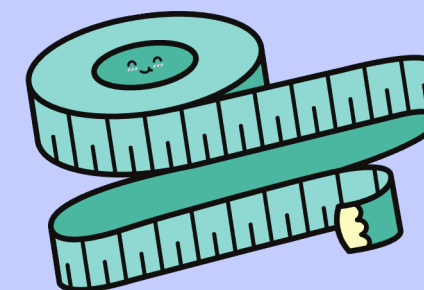
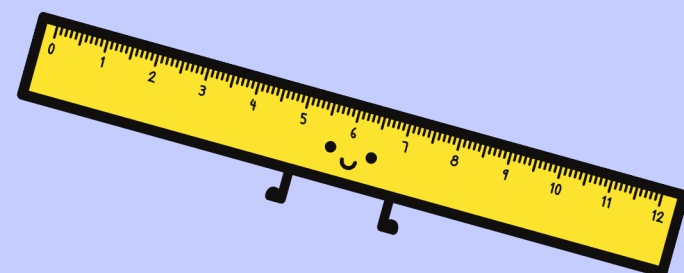
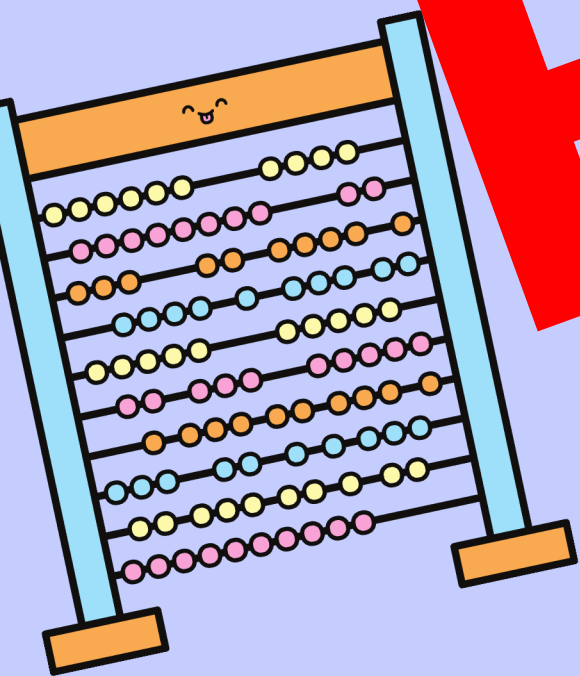
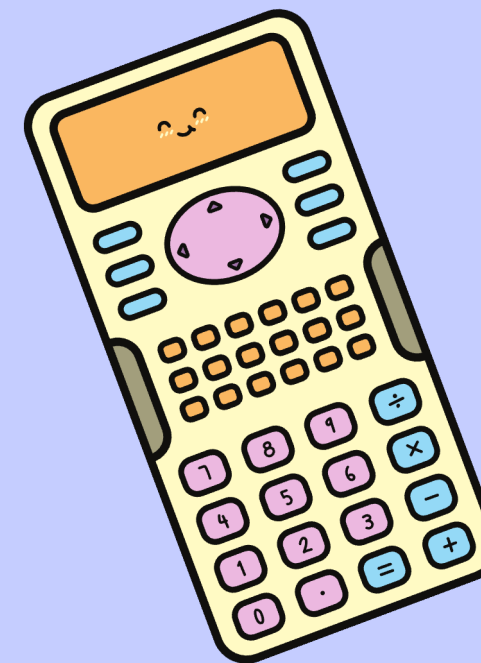
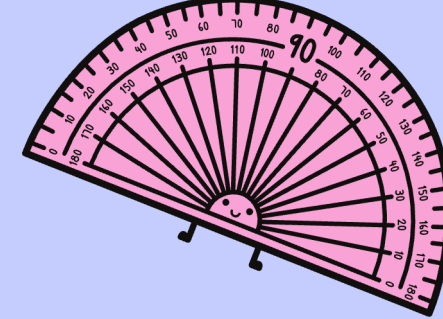
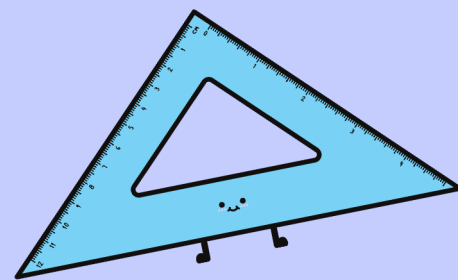
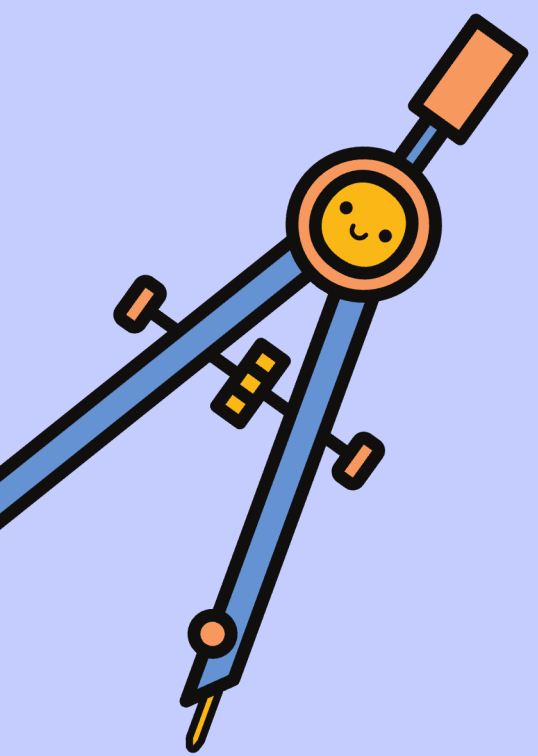
Answer 10

**PREVIEW**

B. 30 to 42

the rule is +6.





**PREVIEW**

Quiz complete!