Number Patterns and Sequences for Class 5

Unit: Number System & Notation - Student Practice Worksheet

Overview: Ms. Rao wrote 3, 7, 11, 15, ___ on the board and asked for the next number. Kabir guessed 16. Anaya guessed 19. Only one of them had actually found the RULE — the other had just guessed a number that looked plausible.

Practice Questions (30 Total)

Section A - Easy

Q1. The table shows an add-2 sequence's position and term. Using it, what comes next?

The table shows an add-2 seq

- A. 10
- B. 9
- C. 12
- D. 16

Q2. In an arithmetic pattern, what stays the same between terms?

- A. The number of digits
- B. The last digit only
- C. The fixed amount added or subtracted
- D. Nothing stays the same

Q3. What comes next: 100, 90, 80, 70, ___? Work out the gap and apply it.

- A. 50
- B. 60
- C. 65
- D. 75

Q4. The table shows an add-5 sequence's position and term. Using it, what comes next?

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The table shows an add-5 seq

- [ ] **A.** 22
- [ ] **B.** 25
- [ ] **C.** 30
- [ ] **D.** 24

Q5. In a geometric pattern, what stays the same between terms?

- [ ] **A.** The fixed amount multiplied or divided
- [ ] **B.** The amount subtracted
- [ ] **C.** The amount added
- [ ] **D.** Nothing at all

Q6. What comes next: 3, 6, 12, 24, ___? Work out the multiplier and apply it.

- [ ] **A.** 36
- [ ] **B.** 30
- [ ] **C.** 27
- [ ] **D.** 48

Q7. The table shows a doubling sequence. Using it, what comes next?

The table shows a doubling s

- [ ] **A.** 10
- [ ] **B.** 12
- [ ] **C.** 9
- [ ] **D.** 16

Q8. What is a 'term' in a sequence?

- [ ] **A.** One single number in the sequence
- [ ] **B.** The whole sequence
- [ ] **C.** The rule connecting numbers
- [ ] **D.** The last number only

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Q9. What comes next: 20, 17, 14, 11, ___? Work out the gap and apply it.

- A. 9
- B. 8
- C. 7
- D. 10

Q10. The table shows the first 3 square numbers. Using it, work out what the 4th square number is.

- A. 12
- B. 13
- C. 16
- D. 9

Section B - Medium

Q11. The table shows Ms. Rao's sequence. Using it, what is the next term?

The table shows Ms. Rao's se
then compare

- A. 19
- B. 16
- C. 18
- D. 20

Q12. Why couldn't Kabir's subtraction rule explain 2, 4, 8, 16?

- A. Because the numbers were too big
- B. Because subtraction never works on sequences
- C. Because the sequence had no rule at all
- D. Because the gaps between terms were not equal

Q13. Find the missing term: 5, ___, 15, 20, 25. Work out the gap and apply it.

- A. 10
- B. 8
- C. 12

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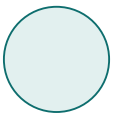
- [ ] **D.** 13

Q14. The table shows Anaya's sequence. Using it, what is the next term?



The table shows Anaya's sequ

- [ ] **A.** 24
- [ ] **B.** 32
- [ ] **C.** 20
- [ ] **D.** 18

Q15. What is the rule for the sequence 50, 45, 40, 35?

- [ ] **A.** Add 5
- [ ] **B.** Multiply by 5
- [ ] **C.** Subtract 5
- [ ] **D.** Divide by 5

Q16. Find the missing term: 3, 9, ___, 81, 243. Work out the multiplier and apply it.

- [ ] **A.** 18
- [ ] **B.** 27
- [ ] **C.** 36
- [ ] **D.** 45

Q17. The table shows a square-number sequence. Using it, what comes next?

The table shows a square-num

- [ ] **A.** 30
- [ ] **B.** 49
- [ ] **C.** 36
- [ ] **D.** 35

Q18. Why does Ms. Rao say to test a rule against EVERY term, not just the first two?

- [ ] **A.** Because a rule that fits only the first two terms might not fit the rest of the sequence

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- [ ] **B.** Because sequences never have more than 2 terms
- [ ] **C.** Because the first two terms are always wrong
- [ ] **D.** Because testing more terms is always slower

Q19. Find the missing term: 64, 32, 16, ___, 4. Work out the divisor and apply it.

- [ ] **A.** 12
- [ ] **B.** 8
- [ ] **C.** 10
- [ ] **D.** 6

Q20. The table shows the 6th square number's position. Using it, compute 6x6.

- [ ] **A.** 12
- [ ] **B.** 30
- [ ] **C.** 42
- [ ] **D.** 36

Section C - Challenge

Q21. The table shows the triangular-number sequence and the gap growing by 1 each step. Using it, what comes next after 15?

The table shows the triangul

- [ ] **A.** 18
- [ ] **B.** 21
- [ ] **C.** 20
- [ ] **D.** 25

Q22. Kabir claims: 'Every sequence must be either arithmetic or geometric.' Is this true?

- [ ] **A.** Yes, those are the only two possible kinds
- [ ] **B.** Only for sequences longer than 10 terms
- [ ] **C.** Only for sequences of even numbers
- [ ] **D.** No -- some sequences, like square or triangular numbers, follow other kinds of rules entirely

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Q23. A sequence is defined as 'double the previous term, then subtract 1': 2, 3, 5, 9, ___. Work out the next term.

- A. 17
- B. 16
- C. 18
- D. 15

Q24. The table shows a geometric sequence with ratio x3. Using it, what is the 6th term?

The table shows a geometric

- A. 162
- B. 324
- C. 486
- D. 108

Q25. Anaya's method was to test gaps, then ratios, then special shapes like squares, in that order. Why might trying gaps FIRST usually make sense?

- A. Because gaps are always the correct answer
- B. Because ratios can never be found in real sequences
- C. Because square number patterns don't really exist
- D. Because addition/subtraction patterns are the simplest to spot and check

Q26. A sequence has terms 100, 50, 25, 12.5. Work out whether it's arithmetic or geometric.

- A. Arithmetic -- the gaps are equal
- B. Neither type applies
- C. Geometric -- each term is halved
- D. Both types apply equally

Q27. The table shows an arithmetic sequence. Using it, what is the 10th term?

The table shows an arithmeti

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- [ ] **A.** 29
- [ ] **B.** 32
- [ ] **C.** 35
- [ ] **D.** 30

Q28. Why is it important to distinguish an arithmetic pattern from a geometric one before predicting far-ahead terms?

- [ ] **A.** It makes no real difference either way
- [ ] **B.** Geometric growth is far faster, so the wrong rule badly misses
- [ ] **C.** Because arithmetic patterns are always wrong
- [ ] **D.** Because geometric patterns never have more than 5 terms

Q29. A sequence begins 4, 9, 16, 25 (starting from the 2nd square number). Work out what comes 3 terms after 25.

- [ ] **A.** 64
- [ ] **B.** 49
- [ ] **C.** 81
- [ ] **D.** 36

Q30. The table shows a sequence's terms and their gaps. Using it, work out the rule -- does the added amount stay fixed or grow?

- [ ] **A.** The added amount grows by 1 each step
- [ ] **B.** Add a fixed 3 each time
- [ ] **C.** Multiply by 2 each time
- [ ] **D.** Subtract a fixed amount each time

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Answer Key

Q1: (A) (a) 10. Read the table's Term row: each step adds 2, so after 8 comes 10.

Q2: (C) (c) The fixed amount added or subtracted each time.

Q3: (B) (b) 60. Each term subtracts 10.

Q4: (B) (b) 25. Read the table's Term row: each step adds 5, so after 20 comes 25.

Q5: (A) (a) The fixed amount multiplied or divided by, each time.

Q6: (D) (d) 48. Each term doubles.

Q7: (D) (d) 16. Read the table's Term row: each step doubles, so after 8 comes 16.

Q8: (A) (a) One single number in the sequence.

Q9: (B) (b) 8. Each term subtracts 3.

Q10: (C) (c) 16. The table shows 1x1, 2x2, 3x3; the 4th continues the pattern: 4x4=16.

Q11: (A) (a) 19. The table shows each gap is +4, so 15 + 4 = 19.

Q12: (D) (d) The gaps between terms (2, 4, 8) were not equal -- it wasn't an arithmetic pattern.

Q13: (A) (a) 10. The pattern adds 5 each time.

Q14: (B) (b) 32. The table shows each term doubles, so 16 x 2 = 32.

Q15: (C) (c) Subtract 5 each time.

Q16: (B) (b) 27. The pattern multiplies by 3 each time.

Q17: (C) (c) 36. The table's pattern is square numbers: 6x6=36.

Q18: (A) (a) A rule that only fits the first two terms could easily be wrong for the rest of the sequence.

Q19: (B) (b) 8. The pattern divides by 2 each time.

Q20: (D) (d) 36. The table names position 6; compute 6x6=36.

Q21: (B) (b) 21. The table's gap row shows +2,+3,+4,+5 -- the next gap is +6: 15+6=21.

Q22: (D) (d) No -- sequences can follow other rules too, like square or triangular numbers, neither purely additive nor purely multiplicative.

Q23: (A) (a) 17. 9 x 2 = 18, minus 1 = 17.

Q24: (C) (c) 486. The table's 5th term is 162; the 6th is 162x3=486.

Q25: (D) (d) Addition/subtraction patterns are usually the simplest to check first, before moving to more complex rules.

Q26: (C) (c) Geometric -- each term is divided by 2 (halved) from the one before.

Q27: (B) (b) 32. The table shows +3 each step from position 4 (14) to position 10: 14+3x6=32.

Q28: (B) (b) Geometric patterns grow or shrink much faster than arithmetic ones, so mistaking one for the other causes predictions to diverge wildly.

Q29: (A) (a) 64. 25 is 5-squared, next is 6-squared=36, then 7-squared=49, then 8-squared=64.

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Q30: (A) (a) The table's Gap row shows +2,+3,+4,+5 -- the added amount grows by 1 each step, the triangular number pattern.

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