WONDERLEARNERZ PRIMARY ACADEMY â€" OFFICIAL ANSWER KEY & MARKING SCHEME

Patterns and Sequences - Worksheet 4 [ANSWER KEY]

Grade 3 | Mathematics | Ch 3: Patterns and Sequences | Total Marks: 19 | Time: 30 Minutes

Q1. Find the next number in the sequence: 9, 12, 15, 18, [?] [1 Mark]

Correct Answer: 21

Explanation: The rule is add 3: 18 + 3 = 21.

Q2. Which of the following numbers is an ODD number? [1 Mark]

Correct Answer: 347

Explanation: Odd numbers end in 1, 3, 5, 7, or 9. 347 ends in 7.

Q3. What is the sum of any two odd numbers (e.g., 7 + 11)? [1 Mark]

Correct Answer: Always an even number

Explanation: Odd + Odd = Even (e.g., 7 + 11 = 18).

Q4. In a repeating shape pattern with a 3-element core (, ,), what is the 12th shape? [1 Mark]

Correct Answer: (the 3rd shape)

Explanation: 12 / 3 = 4 with remainder 0. When remainder is 0, it is the last shape of the core ().

Q5. At the Musical Rhythm Patterns, an engineer places solar panels in rows: Row 1 has 9 panels, Row 2 has 12, Row 3 has 15. How many panels will be installed in Row 5? [1 Mark]

Correct Answer: 21 panels

Explanation: Each row increases by 3: Row 4 = 18, Row 5 = 21 panels.

Q6. A runner trains by running laps: Day 1 (3 laps), Day 2 (6 laps), Day 3 (9 laps), Day 4 (12 laps). Following this pattern, how many laps will the runner complete on Day 7? [1 Mark]

Correct Answer: 21 laps

Explanation: The rule is 3 x Day number: 7 x 3 = 21 laps.

Q7. A library arranges shelves with alternating color stickers: Red, Blue, Green, Yellow, Red, Blue, Green, Yellow... What color sticker is placed on the 26th shelf? [1 Mark]

Correct Answer: Blue

Explanation: Core length is 4. 26 / 4 = 6 R 2. The 2nd color in the core is Blue.

Q8. Find the missing term in the sequence: 9, [?], 15, 18, 21 [1 Mark]

Correct Answer: 12

Explanation: 9 + 3 = 12.

Q9. Solve the two-step pattern: 4, 7, 6, 9, 8, 11, [?] [1 Mark]

Correct Answer: 10

Explanation: The pattern alternates: +3, -1, +3, -1, +3, -1. 11 - 1 = 10.

Q10. A student writes: 'The sequence 5, 10, 20, 35, 55 has a rule of adding 5 each time.' What is the error in this statement? [1 Mark]

Correct Answer: The numbers do not increase by 5 each time; the differences are +5, +10, +15, +20 (growing differences)

Explanation: The differences grow by 5 each step (+5, +10, +15, +20), rather than a constant difference of 5.

Q11. Farah claims: 'Because 24 is even and 15 is odd, their product 24 x 15 must be odd.' What is Farah's mistake? [1 Mark]

Correct Answer: Even x Odd is always EVEN (24 x 15 = 360, which ends in 0)

Explanation: Any number multiplied by an even number yields an even product.

Q12. Why does adding two odd numbers always produce an even sum? (e.g., 2n+1 + 2m+1) **[2 Marks]**

Correct Answer: Each odd number has an extra 'leftover' 1 when paired in twos; the two leftovers pair up to make an exact pair, leaving no remainder

Explanation: Each odd number has 1 unpaired remainder. When added together, 1 + 1 = 2, completing an exact pair.

Q13. In the number sequence starting at 1 where every term adds 2 (1, 3, 5, 7, 9...), **[2 Marks]**
will the number 500 ever appear in this sequence?

Correct Answer: No, because all numbers in this sequence are odd, and 500 is an even number

Explanation: Starting with an odd number and repeatedly adding 2 generates only odd numbers. 500 is even.

Q14. A baker stacks cupcakes in a triangle display: 1 cupcake in top tier, 3 in **[2 Marks]**
second, 6 in third, 10 in fourth, 15 in fifth. How many cupcakes will be in the 7th tier?

Correct Answer: 28 cupcakes

Explanation: Triangular numbers: tier 6 has 15 + 6 = 21 cupcakes; tier 7 has 21 + 7 = 28 cupcakes.

Q15. In a sequence where the rule is 'Multiply by 2 and subtract 1', the first term is **[2 Marks]**
3. What is the 4th term?

Correct Answer: 17

Explanation: Term 1: 3. Term 2: (3 x 2) - 1 = 5. Term 3: (5 x 2) - 1 = 9. Term 4: (9 x 2) - 1 = 17.