

Number Patterns: Squares and Triangles

Unit: Number Play - Student Practice Worksheet

Overview: Pixel asked Kabir and Anaya to find the sum of the first 9 odd numbers — 1, 3, 5, 7, 9, 11, 13, 15, and 17. Kabir reached for paper to add them one at a time. Anaya said the answer was 81 before he had finished the first row.

Practice Questions (30 Total)

Section A - Easy

Q1. The diagram shows $1+3$, the sum of the first 2 odd numbers. What is the total?

$$\textcircled{1} + \textcircled{3} = \boxed{?}$$

Sum of first 2 odd numbers

- ☐ A. 3
- ☐ B. 4
- ☐ C. 5
- ☐ D. 6

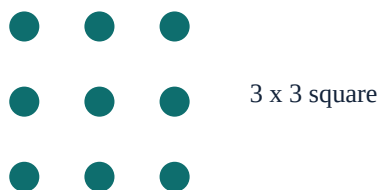
Q2. Which numbers are odd?

- ☐ A. 2, 4, 6, 8
- ☐ B. 1, 3, 5, 7
- ☐ C. 0, 2, 4, 6
- ☐ D. 10, 12, 14, 16

Q3. What is $1+3+5$, the sum of the first 3 odd numbers?

- ☐ A. 8
- ☐ B. 10
- ☐ C. 9
- ☐ D. 12

Q4. This 3×3 square has 9 dots. Which odd-number sum matches it?



- ☐ A. $1+3+5$
- ☐ B. $1+3$
- ☐ C. $1+3+5+7$
- ☐ D. $1+2+3$

Q5. The sum of the first n odd numbers always equals what?

- ☐ A. n
- ☐ B. $2n$
- ☐ C. n squared
- ☐ D. $n+1$

Q6. What is $1+3+5+7$, the sum of the first 4 odd numbers?

- ☐ A. 14
- ☐ B. 15
- ☐ C. 18
- ☐ D. 16

Q7. This 2×2 square has 4 dots. Which sum of odd numbers builds it?



- ☐ A. $1+3$
- ☐ B. $1+3+5$
- ☐ C. 1 alone only
- ☐ D. $3+5$

Q8. $1+3=4$ can also be written as which square?

- ☐ A. 1 squared
- ☐ B. 3 squared
- ☐ C. 2 squared
- ☐ D. 4 squared

Q9. What is the sum of the first 5 odd numbers?

- ☐ A. 20
- ☐ B. 30
- ☐ C. 25
- ☐ D. 15

Q10. Kabir adds the first 4 odd numbers and gets 16. As what square can he write that total?

- ☐ A. 2 squared
- ☐ B. 3 squared
- ☐ C. 5 squared
- ☐ D. 4 squared

Section B - Medium

Q11. The card shows $9 \times 9 = 81$. What is the sum of the first 9 odd numbers?

$9 \times 9 = 81$

first 9 odd numbers

- ☐ A. 81
- ☐ B. 72
- ☐ C. 90
- ☐ D. 64

Q12. What is the last odd number added when finding the sum of the first 9 odd numbers?

- ☐ A. 15
- ☐ B. 19
- ☐ C. 17

☐ D. 18

Q13. What is the sum of the first 12 odd numbers?

☐ A. 132

☐ B. 121

☐ C. 156

☐ D. 144

Q14. Pixel's challenge: sum of the first 12 odd numbers. What total does the card show?

$$12 \times 12 = 144$$

☐ A. 132

☐ B. 144

☐ C. 156

☐ D. 121

Q15. If the sum of the first n odd numbers is 49, what is n ?

☐ A. 7

☐ B. 6

☐ C. 8

☐ D. 49

Q16. Anaya predicts the sum of the first 8 odd numbers. What should she get?

☐ A. 56

☐ B. 72

☐ C. 64

☐ D. 49

Q17. The four chips show the first 4 odd numbers. What square number do they sum to?



First four odd numbers

- ☐ A. 12
- ☐ B. 14
- ☐ C. 18
- ☐ D. 16

Q18. Which statement matches the pattern from the video?

- ☐ A. Sum of first n even numbers equals n squared
- ☐ B. Sum of first n odd numbers equals n squared
- ☐ C. Sum of first n counting numbers equals n squared
- ☐ D. Any sum of odd numbers is always odd

Q19. Kabir lists the first 12 odd numbers ending at 23. How many odd terms is that?

- ☐ A. 10
- ☐ B. 11
- ☐ C. 12
- ☐ D. 23

Q20. To check $9 \text{ squared} = 81$, which long sum should Kabir add?

- ☐ A. $1+2+3+4+5+6+7+8+9$
- ☐ B. $1+3+5+7+9+11+13+15+17$
- ☐ C. $1+3+5+7+9+11+13+15$
- ☐ D. $2+4+6+8+10+12+14+16+18$

Section C - Challenge

Q21. The 9th square minus the 8th square equals which odd number?

$$\boxed{9^2=81} - \boxed{8^2=64} = \boxed{?}$$

- ☐ A. 15
- ☐ B. 17
- ☐ C. 13
- ☐ D. 9

Q22. Why does adding the first n odd numbers give a perfect square every time?

- ☐ A. Odd numbers are always prime numbers
- ☐ B. Each odd term adds one row and one column to a growing dot square
- ☐ C. Squares come only from even numbers, never odd
- ☐ D. It only works when n is less than 10

Q23. If the sum of the first n odd numbers is 144, what is n ?

- ☐ A. 10
- ☐ B. 11
- ☐ C. 144
- ☐ D. 12

Q24. Kabir's check sum for 81 is missing the last term. Which odd number fills the gap?

$$1+3+5+7+9+11+13+15+? = 81$$

- ☐ A. 19
- ☐ B. 15
- ☐ C. 17
- ☐ D. 18

Q25. The video asks for the sum of the first 9 odd numbers. What is the fastest correct method?

- ☐ A. Add $9+11+13$ only

- ☐ B. Multiply 9 by 8
- ☐ C. Square 9 to get 81
- ☐ D. Double 81

Q26. What is the sum of the first 12 odd numbers minus the sum of the first 9 odd numbers?

- ☐ A. 54
- ☐ B. 63
- ☐ C. 72
- ☐ D. 81

Q27. What is the sum of the first 25 odd numbers?

25×25

- ☐ A. 625
- ☐ B. 600
- ☐ C. 650
- ☐ D. 576

Q28. Which pair correctly matches an odd-number sum with its square form?

- ☐ A. $1+3+5=9=3$ squared
- ☐ B. $1+3=4=3$ squared
- ☐ C. $1+3+5+7=16=3$ squared
- ☐ D. First 9 odds = 72

Q29. What is the 12th odd number in the sequence starting 1, 3, 5, 7?

- ☐ A. 21
- ☐ B. 23
- ☐ C. 25
- ☐ D. 24

Q30. Anaya has 100 beans and wants to lay out the first n odd numbers as an $n \times n$ square. What is the largest n she can complete?

- ☐ **A.** 9
- ☐ **B.** 10
- ☐ **C.** 11
- ☐ **D.** 10, because 10 squared is 100

Answer Key

- Q1:** (B) (b) 4. Two odd numbers, so 2 squared is 4.
- Q2:** (B) (b) 1, 3, 5, 7. Odd numbers are not divisible by 2.
- Q3:** (C) (c) 9. Three odd numbers, so 3 squared is 9.
- Q4:** (A) (a) $1+3+5$. Three odd terms give 9, which is 3 squared.
- Q5:** (C) (c) n squared. However many odd numbers you add from 1, square that count.
- Q6:** (D) (d) 16. Four odd numbers, so 4 squared is 16.
- Q7:** (A) (a) $1+3$. Two odd numbers sum to 4, which is 2 squared.
- Q8:** (C) (c) 2 squared. The first 2 odd numbers sum to $2 \times 2 = 4$.
- Q9:** (C) (c) 25. Five odd numbers, so 5 squared is 25.
- Q10:** (D) (d) 4 squared. $1+3+5+7=16=4 \times 4$.
- Q11:** (A) (a) 81. Nine odd terms, so 9 squared is 81.
- Q12:** (C) (c) 17. The 9th odd number is $2 \times 9 - 1 = 17$.
- Q13:** (D) (d) 144. Twelve odd terms, so 12 squared is 144.
- Q14:** (B) (b) 144. Twelve odd numbers sum to 12 squared, which is 144.
- Q15:** (A) (a) 7. Since 7 squared is 49.
- Q16:** (C) (c) 64. Eight odd terms, so 8 squared is 64.
- Q17:** (D) (d) 16. $1+3+5+7=16$, which is 4 squared.
- Q18:** (B) (b) Sum of first n odd numbers equals n squared.
- Q19:** (C) (c) 12. Twelve terms from 1 through 23 in steps of 2.
- Q20:** (B) (b) $1+3+5+7+9+11+13+15+17$. Nine odd terms should total 81.
- Q21:** (B) (b) 17. $81-64=17$, the 9th odd number that grows 8×8 into 9×9 .
- Q22:** (B) (b) Each odd term adds one row and one column to a growing dot square.
- Q23:** (D) (d) 12. Since 12 squared is 144.
- Q24:** (C) (c) 17. The 9th odd number completes the sum to 81.
- Q25:** (C) (c) Square 9 to get 81. Count nine odd terms, then compute 9×9 .
- Q26:** (B) (b) 63. $144-81=63$, from adding the 10th, 11th, and 12th odd numbers: $19+21+23$.
- Q27:** (A) (a) 625. Twenty-five odd terms, so 25 squared is 625.
- Q28:** (A) (a) $1+3+5=9=3$ squared. Three odd terms give 3×3 .
- Q29:** (B) (b) 23. The 12th odd number is $2 \times 12 - 1 = 23$, the last term in the video's 12-number check.
- Q30:** (D) (d) 10, because 10 squared is 100. She needs exactly n squared beans for the first n odd numbers.
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You've got this! Keep learning and shining! - Ruchi Math Coaching