

1. State the next number in the sequence and explain how you determined this value.

(a) 1, 4, 9, 16, 25, 36, 49

(g) 12, 14, 16, 18, 20

(b) 1, 2, 4, 8, 16, 32, 64

(h) 10, 50, 90, 130, 170

(c) 8, 16, 24, 32, 40

(i) 14, 22, 32, 44, 58

(d) 5, 15, 45, 135, 405

(j) 5, 15, 37, 77, 141

(e) 2, 12, 72, 432, 2592

(k) 1, 4, 11, 22, 37, 56

(f) 256, 128, 64, 32, 16

(l) 3, 14, 31, 54, 83, 118

2. Brian earns extra money delivering the Boston Globe. For fun, Brian varies his route. Today, he has delivered to house numbers 1, 2, 3, 5, 8, and 13. If he continues in the same manner, to what house will he deliver next?

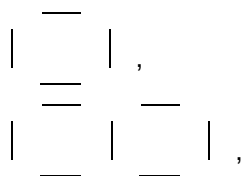
3. A coach makes player substitutions during a game. During one particular game, the coach substituted player #3 for player #8, player #7 for player #12, player #5 for player #10, and player #4 for player #5. Which player will the coach substitute for player #11?

4. What number has been replaced by the question mark? 65, 34, 18, 9, ?, 7, 2, 1

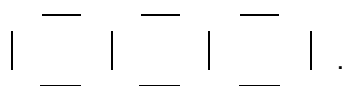
5. Replace the question marks. 252649506364991009??

6. What digit has been replaced by the question mark in the last pair? 45, 67, 89, 98, 76, 5?

7. Toothpicks can be arranged to form rows of squares such as



and



How many toothpicks are required to form a row of one-hundred squares in this manner?

8. The rectangular numbers are the positive integers that represent the total number of dots in the arrays shown below. How many dots make up the array for the n th rectangular array?

