1. One can of frozen juice concentrate, when mixed with 4 1/3 cans of water, makes 2 quarts (64 oz) of juice. Assuming no volume is gained or lost by mixing, how many oz does a can hold?
   A. 8   B. 10   C. 12   D. 15   E. 18

2. Define the operation \( \Delta \) by \( a \Delta b = ab + b \). Find \((3 \Delta 2) \Delta (2 \Delta 3)\).
   A. 72   B. 73   C. 80   D. 81   E. 90

3. Trina has two dozen coins, all dimes and nickels, worth between $1.72 and $2.11. What is the least number of dimes she could have?
   A. 10   B. 11   C. 15   D. 18   E. 19

4. A bicycle travels at \( s \) feet/min. When its speed is expressed in inches/sec, the numerical value decreases by 16. Find \( s \). (1 foot = 12 inches)
   A. 12   B. 16   C. 18   D. 20   E. 24

5. Add any integer \( N \) to the square of \( 2N \) to produce an integer \( M \). For how many values of \( N \) is \( M \) prime?
   A. 0   B. 1   C. 2   D. A finite number > 2   E. An infinite number

6. Sixteen students in a dance contest have numbers 1 to 16. When they are paired up, they discover that each couple’s numbers add to a perfect square. What is the largest difference between the two numbers for any couple?
   A. 5   B. 7   C. 10   D. 12   E. 14

7. Let \( r, s, \) and \( t \) be nonnegative integers. How many such triples \((r, s, t)\) satisfy the system \[
\begin{cases}
rs + t = 14 \\
r + st = 13
\end{cases}
\]?
   A. 2   B. 3   C. 4   D. 5   E. 6

8. The average of any 17 consecutive perfect square integers is always \( k \) greater than a perfect square. If \( k = 2m \), where \( m \) is odd, find \( r \).
   A. 0   B. 1   C. 2   D. 3   E. 4