Nassau County Interscholastic Mathematics League
Contest #1   Answers must be in simplest exact form, unless otherwise noted.   2008-2009
No calculators are allowed.

Time: 10 minutes

1. What three-digit number is equal to eleven times the sum of its digits?

2. If the sum of $5x$ and $2y$ is equal to 288% of y, compute $\dfrac{y}{x}$.

Time: 10 minutes

3. A basketball player averaged 18 points per game for the first quarter of the season and 28 points per game for the next third of the season. Compute the player's exact average number of points per game for the remainder of the season if, at the end of the season, his average was 26 points per game.

4. The medians to the legs of a right triangle measure 8 and $2\sqrt{19}$. In simplest form, how long is the hypotenuse of the triangle?

Time: 10 minutes

5. Amber, Bobbie, and Cheryl walk at a constant speed of 4 kph, 5 kph, and 6 kph, respectively. Amber starts walking from a point on the Yellow Brick Road at 11:35 am and Bobbie starts walking from the same point on the same route as Amber at 11:53 am. At what time of the day (include am or pm with your answer) should Cheryl start walking from the same point on the same route as Amber and Bobbie so that all three meet at the same time?

6. The function f is defined recursively as follows: $f(n+1) = \dfrac{3[f(n)]+1}{3}$, for $n = 1, 2, 3, \ldots$ and $f(1) = 7$.

Compute n if $f(n+1) = 676.\overline{3}$.