

Nassau County Interscholastic Mathematics League
Answers must be in simplest exact form, unless otherwise noted.
No calculators are allowed.

Contest #5

2008-2009

Time: 10 minutes

25. Two positive numbers differ by 14. The difference between their arithmetic mean and their positive geometric mean is 1. Compute the greater of the two numbers.

26. Compute $\frac{\log 128}{\log 0.25}$.

Time: 10 minutes

27. The diagonal of a rectangular prism measures 26 cm. Two of its three dimensions measure $4\sqrt{19}$ cm and $8\sqrt{3}$ cm. Compute the exact number of centimeters in the length of its third dimension.

28. Express $\frac{399.91}{15999.9919}$ as a fraction in simplest form.

Time: 10 minutes

29. The sides of a triangle have the lengths $\sqrt{20}$, $\sqrt{17}$, and $\sqrt{29}$. Compute the exact area of the triangle.

30. If $\sin \theta = \frac{\sec \theta}{4}$ and θ is an acute angle, compute all possible degree-values of θ .