UW-Platteville Mathematics Meet – 2013
Level I – Individual Event

Each correct answer is worth 10 points.

_______1: Ten more than one-sixth of a number is equal to one-third of one-fifth of 300. Find the number.

_______2: The price of a coat is discounted 30%. After 5% sales tax is added on, the customer pays $95.55. What was the original price of the coat?

_______3: A line with slope 14 passes through the points $P(-13, -37)$ and $Q(x, 257)$. Find the value of $x$.

_______4: A cross is composed of six congruent squares as shown. If $AB = 10$, find the area of the cross.

_______5: If $\frac{x - y}{x + y} = \frac{7}{3}$, compute $\frac{x}{y}$.

_______6: Find the product of the base-four numbers 11 and 123. Give your answer in base four.

_______7: The operation $\odot$ is defined by $x \odot y = \frac{x^2 + y^2}{x + y}$. If $x \odot 4 = 10$, find $x$.

_______8: One solution to the equation $|2x + 11| = |x + 10|$ is $x = -1$. Find the other solution.

_______9: Find the value of $K$ so that $x = 5$ is a root of $f(x) = x^2 + 18x + K$.

_______10: The corner of a billiard table (at point $A$) makes an angle of $70^\circ$ (not the usual $90^\circ$). A ball struck from point $P$ hits the cushion at point $B$ so that $\angle PBD = 40^\circ$. It then reflects off of the cushion (at the same angle) and strikes the opposite cushion at point $C$; it reflects off that cushion and returns to point $P$. What is $\angle BPC$?