Bergen County Mathematics League

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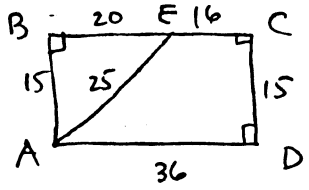
Brief Contest Solutions #4

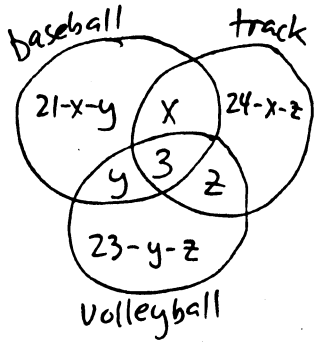
2013-2014

4-1. 

$\text{Area}(AECD) = \frac{16+36}{2}(15) = \boxed{390}$

4-2. $\sqrt{x^2} = |x| > x \Rightarrow \boxed{x < 0}$

4-3. If $n=1$, $2 = 9k$, so $k = \boxed{\frac{2}{9}}$

4-4. 

Adding,
$68 - x - y - z + 3 = 50$,
so $x+y+z = \boxed{21}$.

4-5. Since, in base b, $b^4+b^3+b^2+b+0 = 11110$, it follows that $x^2+x^4+x^6+x^8 = (x^2)^4 + (x^2)^3 + (x^2)^2 + (x^2)^1 + 0 = 11110$, so $x^2 = \text{the base} = 100$, and $x = \boxed{10}$.

4-6. Each match eliminates 1 player; thus, to have only 1 winner, there must be $\boxed{99}$ players eliminated