WSMA Math Bowl – March 7, 2015

MS Creativity Round

1	Use the number 1 three times with any mathematical expressions to get 6.
2	Prove that x^4+2 = 5y + 4 has no integer solutions.
3	A man gives you 10 black marbles, 10 white marbles, and 2 empty bowls. He then says to divide 20 marbles into 2 bowls. You can divide them any way you like as long as you use all the marbles. He will then blindfold you and you will mix the bowls around. You then can choose one bowl and remove one marble. If the marble is white you win, but if the marble is black you lose. How do you divide the marbles up so that you have the greatest probability of choosing a white marble?
4	4 + 2 = 12, 9 + 3 = 72, then 99 + 33 = ……..
5	If you have two integers a, and b. Show that you can find integers ax+by = 1 if and only if a and b are relatively prime.

