WSMA Math Bowl - March 29, 2014

College Bowl Round 4 Proctors' Answer Sheet

1	Serina is baking a cake. She needs 29g of sugar and has sugar cubes weighing 1g, 2g, 4g, 8g, and 16g. Which sugar cube can she discard?	2g
2	Steven is trying to build a rectangular cage with an area of 96 m^2 using a 40 m wire mesh. xm is the length of the shorter side. Find the range of x.	8<=x<=10
3	Chris is trying to build a cube by stacking 6 by 18 by 4 rectangular prism boxes. What is the smallest number of boxes he needs?	108
4	A triangle has side lengths 4, 9, and 12. Find the length of the shortest altitude.	5sqrt(119)/24
5	Find the distance from the origin to the line 4x-3y+12=0	12/5
6	The product of three positive integers a, b, and c is 36. If ab=6, bc=18, and ca=12, find the value of a+b+c	11
7	Points A, B, and C are placed on a circle centered at O. Point D is on AB so that CD is perpendicular to AB. The length BC is Sqrt(2). If the diameter of this circle is 4 and points A, O, and B are collinear, find the length of CD.	Sqrt(7)/2
Extra	Steven is mixing solution A which has a concentration of 8% and solution B which has a concentration of 13% in order to produce 1L of solution C with concentration of 10%. Find the volume of solution B needed for this process in grams.	$400g$