Bright Eyes & Bushy Tails
Housecall Veterinary Service
3005 Highway 1 NE
Iowa City, IA 52240
(319) 321-3699 (mobile)
(319) 229-7344 (pager)
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Dear Animal Shelter raffle participant,

On June 5-6, Bright Eyes & Bushy Tails Veterinary Clinic sponsored a raffle at the Animal Shelter. We had 92 entries--Thank you for participating! "How many hairs are on a dog's back" was our version of "how many jellybeans are in the jar." We apologize if we misspelled your name on the envelope, but the writing on some of the entries was difficult to read.

To determine the answer, we turned to Miller's Anatomy of the Dog, a comprehensive (1200 page) anatomy textbook. As a few of you pointed out during the competition, dogs have several different types of hair. On a dog's back, there are both cover-hairs ("guard hairs") and under-hairs. The guard hairs are longer, thicker, and stiffer. The smaller under-hairs provide most of the insulation (and softness!).

Dog hairs grow from hair follicles, and each follicle has one guard hair. But, in addition to the guard hair, there are also up to 15 under-hairs emerging from the same follicle with the guard hair (growing as a tiny tuft of hairs sprouting from the pore of the follicle). There are breed variations in the hair coats of dogs. Smooth-haired Terriers and Toy Poodles have the highest density of follicles (giving them lots of guard hairs), but the fewest number of under-hairs coming from each follicle. German Shepherds, Airedales, and Rottweilers have only half as many follicles, but twice as many under-hairs coming from each follicle.

As you know, "Tasha" is a Great Dane. Her hair coat is quite similar to that of a Rottweiler, so we're using the Rottie as our gold standard. **And so the answer is…15,485 hairs per square inch** (200 bundles per square centimeter, times 12 hairs per bundle, times 6.452 sq.cm/sq.in).

We thought about verifying this answer by shaving a 1" square patch on Tasha's back, collecting the clippings, and weighing them. We could then count a random sample of those hairs and weigh them, and multiply out to get the number of hairs in the 1" patch. However, Tasha objected to this plan, because she didn't want to get a sunburn on the shaved patch.