#2 Deer Hunting Problems

(answer key at end)

1. In a park where no hunting is allowed, a deer population of 400 deer can sustain a wolf pack of 50 wolves with the ratio of deer to wolves being maintained. If the deer increase to 600, how many wolves could be sustained?

2. If a deer's gait (step) is 2 ½ feet, how many steps will he have to take to walk a mile?

3. The DNR did a sample deer count per square mile and obtained the following estimated results: 5, 14, 8, 5, 12, 10, 11, 0, 9, 7. Find the average number of deer per square mile as a mean, median, and mode. Which average should the DNR use to report their finding?

4. If 2500 hunters buy licenses that allows each one to shoot 2 deer and if 60 % of the hunters get their 2 deer and another 15% shoot 1 deer with the rest having buck fever and getting none, how many deer were harvested by these hunters?

5. Boone and Crocket is a widely accepted method of scoring trophy deer by combining various measurements of the deer's antlers. The world record for a typical whitetail deer is 218 5/8 points for a deer taken by Milo N. Hanson from Biggar, Saskatchewan, Canada in 1993. However, a nontypical deer scored 333 7/8 points and was picked up by the Missouri Dept. of Conservation in 1981. By how many points did the non-typical trophy exceed the typical trophy?
(http://www.boone-crockett.org/bgrecords/WorldRecordsDetail)

6. Another DNR study has shown that there are about 500 does in a certain county. If half of these produce one fawn per season and the other half two fawns, how many fawns will be produced in one season?

7. In the previous question, if the fawns have a 70% survival rate the first year of their lives, how many of the fawns will survive the first year?

8. A deer heading due North directly into the wind is being followed by a hunter. When the deer suspects that someone is on his trail, he starts walking in a large circle to get downwind of the hunter. At that same time the hunter sits down to have his lunch and stays put. The deer walks at 3 mph, keeping the same distance between himself and the hunter at all times as when he first detected the hunter. After ½ hour, the deer is directly downwind of the hunter. How far did the deer walk during this time? What is the shape of the path he walked? How far was the hunter behind the deer when he first suspected he was being followed?

9. A .308 Winchester (180 Sp) has a muzzle velocity of 2620 ft/s and a velocity of 2198 ft/s after traveling 200 yards. (http://www.chuckhawks.com/rifle_ballistics_table.htm). As soon as the bullet leaves the gun barrel, it begins to drop according to the law of gravity which says that its drop $d = 16t^2$ where d is the number of feet dropped after time t, the number of seconds it has traveled. If you are shooting at a deer 200 yards away, how much will the bullet have dropped when it reaches the deer? Assume an average bullet velocity of 2400 ft./s.

10. Sound travels about 1100 ft./s (http://en.wikipedia.org/wiki/Speed_of_sound) or about one mile in 5 seconds. If the hunter in the previous problem misses the deer, how much time will the hunter have to reload before the deer hears the shot?

11. After being startled by a hunter, a deer runs for 3 minutes at 20 mph. then lies down in a thicket to rest. The hunter follows at a pace of 2mph. How long will it take before the hunter reaches the deer?

#2 Deer Hunting Problems Answer Key

This is for the teacher's information only. The solutions below are only one way of doing the problems. Other mathematically-correct methods are just as valid. Consequently, the problems could then also be re-classified.

1. Proportion problem. 400/50 = 600/w w = **75 wolves**

2. Division problem. 5280 ÷ 2.5 = s s = **2112 steps**

3. Statistics – Averages problem.

For the mean x, (5 + 14 + 8 + 5 + 12 + 10 + 11+ 0 + 9 + 7) ÷ 10 = x x = **8.1 deer**.

For the median y = (8 + 9) ÷ 2 = **8.5 deer**

The mode z **= 5 deer**.

The DNR should use either the **mean or the median** as the average.

4. Multi-step (Per cent and Addition) problem.

(2500 x.60 x2) + (2500 x .15 x 1) = d d= **3375 deer**

5. Fraction subtraction problem. 333 7/8 – 218 5/8 = p p = **115 2/8 points**

6. Fraction and Whole number multiplication and addition.

500 x ½ x 2 + 500 x ½ x 1) = f f = **750 fawns**

7. Percent Multiplication problem. 750 x .70 = s s = **525 fawns**

8. Geometry (circle circumference), fraction multiplication problem.

3 x ½ = w w = **1 ½ miles**

A **semicircle**

C = πd Since C = 3, 3 = πd If we approximate π as 3 (actually about 3.14) then d = 1 and r = ½ . Therefore, the deer is now about ½ mile behind the hunter and the hunter was **½ mile behind** the deer when the deer first detected him.

9. Fraction, division-multiplication problem. 600 ÷ 2400 = t

t = 1/4 second $d = 16t^2$ d = 16(1/4)(1/4) d = **1 foot**

10. Division-fraction problem. 600 ÷ 1100 = t t = **6/11 second** or **about ½ second**

11. Multiplication-Division-Fraction problem.