

# NC FFA Veterinary Science Math Applications Practicum 2013-2104

## 100 Pts.

1. You are going on a farm call that is 61 miles round trip. You charge \$40 for all farm calls, plus \$.53 per mile for every mile. The rest of the charges for the services rendered during the call amount to \$150. What are the total charges for the farm call (travel + services)?

\$ 222.33 (10 pts)

$$\begin{array}{r} 61 \\ \times .53 \\ \hline 32.33 \end{array}$$

$$32.33 + 40 + 150 = 222.33$$

2a. The doctor prescribes Cephalexin 250 mg - 1 capsule PO QID X 14 days. How many capsules are needed for the entire course of treatment?

56 capsules (5 pts)

$$\begin{array}{r} 14 \\ \times 4 \\ \hline 56 \end{array}$$

2b. If the above Cephalexin costs \$0.21 per capsule, and your pharmacy charges a 30% markup, what is the total cost of the prescription?

\$ 15.29 (5 pts)

$$56 \times .21 = \$11.76 \times 1.30 = 15.29$$

3a. You diagnose a 320 kg Angus steer with shipping fever, and elect to treat him with Naxcel (Ceftiofur). You reconstitute a 1 gram vial of Naxcel with 20 ml of sterile water and prescribe it to be administered at a dose of 0.5 mg per pound of body weight IM for three consecutive days. How many mg are in each ml of reconstituted solution?

50 mg/ml (7 pts)

$$\frac{1000 \text{ mg}}{20 \text{ ml}} = 50 \text{ mg/ml}$$

$$1 \text{ gram} = 1000 \text{ mg}$$

3b. Is one 20 ml vial enough for the entire three day course of treatment?

YES or NO (Circle one) (3 pts)

$$320 \times 2.2 = 704 \text{ lbs} \times 5 \text{ mg} = 352 \text{ mg}$$

$$352 \times 3 = 1056 \text{ mg} \quad \text{1 vial} = 1000 \text{ mg} - \text{need } 1056 - \text{NO}$$

4a. Your canine patient is diagnosed with Lyme disease, so you begin treatment with Doxycycline. Your patient weighs 46 pounds, and the dose of Doxycycline is 5 mg/kg PO TID X 24 days. How many mg of Doxycycline does your patient need per dose?

104.5 mg (6 pts)

$$46 \div 2.2 = 20.9 \text{ Kg}$$

$$20.9 \times 5 \text{ mg} = 104.5$$

4b. If Doxycycline were available in either 50 mg tablets or 100 mg tablets, how many tablets would be needed to fill the entire prescription using the least number of tablets possible?

72 50 or 100 mg tablets (List number of tablets and circle one size) (4 pts)  
 $1 \times 3 \times 24$

5a. You patient, Lassie, an 9 year old MN Collie, present for signs of dehydration. You begin IV fluid therapy with LRS. Based on Lassie's weight and hydration deficit, you determine his fluid rate to be 40 ml per hour. How long will it take for half of a 1 L bag of fluids to be administered?

12.5 hrs (7 pts)       $1 \text{ L} = 1000 \text{ ml}$        $1/2 \text{ L} = 500 \text{ ml}$   
 $500 / 40 = 12.5$

5b. If Lassie were to remain on IV fluids for 30 hours, how many 1 L bags of LRS will be required?

2 bags of LRS (3 pts)       $40 \times 30 = 1200 \text{ ml}$   
 $\frac{1200 \text{ ml}}{1000 \text{ ml}} = 1.2$  round up to 2 full

6. In your practice you offer an 10% discount on all services for clients with 3 or more pets. This discount does not apply to flea/tick prevention. Your client, Mr. Wall, brought in his three dogs, Curly, Larry and Mo, for their annual checkups and his total bill came to \$341. Included in this were 12 doses of flea/tick prevention, which costs \$16 per dose. Taking this into account, what would have been Mr. Wall's total bill after the discount was applied?

\$ 326.10 (10 Pts)       $\frac{16}{\times 12} = 192$   
 $341 - 192 = 149$        $149 \times 10 = 14.90$        $149.00 - 14.90 = 134.10$        $134.10 + 192 = 326.10$

7. Your exam room technician reports to you that your next patient, an 8 year old FS Labrador and has a body temperature of 102.2 degrees Fahrenheit. What is her temperature in Celsius?

39 degrees Celsius (10 pts)       $(102.2 - 32) \times \frac{5}{9} =$

8a. One of your hospitalize patients, Queen, a 8 year old FS Labradoodle, is running a fever of 104.4. You order Cefazolin 100 mg/ml to be administered at a dose of 20 mg/kg IV QID. Queen weighs 52 pounds. How many mg should be administered in each dose?

472 mg (6 pts)       $52 \div 2.2 = 23.6 \text{ kg}$   
 $23.6 \times 20 = 472 \text{ mg}$

8b. How many ml should be administered in each dose?

4.72 ml (4 pts)       $\frac{472}{100} = 4.72$

9. You are going to anesthetize a 28 pound canine patient with Propofol in order to perform a dental cleaning. Propofol is dosed at 5.5 mg/kg IV given to effect. Its concentration is 10mg/ml and comes in 20 ml vials. After removing the dose for this patient from a new vial, how many ml will remain in the vial?

13 ml (10 pts)

$$28 \div 2.2 = 12.7 \text{ Kg}$$

$$5.5 \times 12.7 = 69.9 \text{ mg}$$

$$\frac{69.9}{10} = 7 \text{ ml}$$

$$20 - 7 = 13$$

10a. You have the following employees at your practice: An associate veterinarian who makes \$2100 per week, an office manager who makes \$700 per week, 2 receptionists who makes \$12 per hour and work 38 hours per week, 3 technicians who each make \$15 per hour and work 42 hours per week, and one kennel assistant who makes \$8 per hour and works 36 hours per week. What is your weekly employee payroll total?

\$ 5890 (5 pts)

$$\begin{array}{r} 2100 \\ 700 \\ 912 \\ 1890 \\ 288 \\ \hline 5890 \end{array}$$

$$38 \times 12 \times 2 = 912$$

$$42 \times 3 \times 15 = 1890$$

$$8 \times 36 = 288$$

10b. If the practice above generates an average gross revenue of \$16,250 per week, what percentage of the gross weekly revenue goes towards payroll?

36 % (5 pts)

$$\frac{5890}{16250} = .36$$