

NAME: _____

FFA CHAPTER: _____

Please circle the below answer that BEST matches the answer for each question:

1. Which example provides passive immunity?
 - a. Colostrum
 - b. Killed Rabies vaccine
 - c. Modified live vaccine
 - d. Recovering from an illness

2. Where are the "splint bones" in a horse?
 - a. Base of tail
 - b. Lower leg
 - c. Shoulder
 - d. Lower neck

3. What part of the eye is clear in a young, healthy animal?
 - a. Retina
 - b. Iris
 - c. Sclera
 - d. Lens

4. Which organ is not involved in breaking down fats?
 - a. Pancreas
 - b. Liver
 - c. Gallbladder
 - d. Large intestine

5. Which vitamin is most strongly associated with being an anti-oxidant, similar to selenium?
 - a. A
 - b. D
 - c. E
 - d. K

6. What term describes the abnormal noise heard when the linings of the lungs and chest are inflamed?
- Cyanosis
 - Expiration
 - Pleural friction rub
 - Mild Crepitus
7. Needle teeth are found in which newborn?
- Calf
 - Foal
 - Piglet
 - Chick
8. Which species typically has 2 mammary glands (teats)?
- Ovine
 - Bovine
 - Porcine
 - Canine
9. Which gland produces adrenaline and epinephrine?
- Adrenal gland
 - Pituitary gland
 - Thyroid gland
 - Meibomian gland
10. What term describes the organized muscle contractions that move food along the gastrointestinal tract?
- Peristalsis
 - Blepharospasm
 - Agglutination
 - Lysis
11. On an ultrasound, the areas that appear dark relative to surrounding areas are said to be:
- hypoechoic
 - isoechoic
 - hyperechoic
 - subechoic

12. What term describes a disorder of unknown cause?
- Isotonic
 - Idiopathic
 - Infectious
 - Iatrogenic
13. The body needs sunlight to produce which vitamin?
- A
 - D
 - E
 - K
14. Keeping an aquarium clean and not overcrowding the tank will help avoid dangerous levels of:
- ammonia
 - phosphorus
 - oxygen
 - calcium
15. Which animal is not monogastric?
- Goat
 - Horse
 - Cat
 - Dog
16. Which of the following does not describe a male equine?
- Stallion
 - Colt
 - Filly
 - Gelding
17. Bile is stored in which organ?
- Liver
 - Gallbladder
 - Pancreas
 - Small intestine

18. A producer calls you because his cow is in labor and he can see "the bag of waters." What is he seeing?
- Amniotic sac
 - Umbilical cord
 - Chorion
 - Caruncles
19. The vestibular system directly affects which of the following?
- Digestion
 - Reproduction
 - Balance
 - Temperament
20. When a cow is in heat (or "standing heat"), she is in which phase of the estrous cycle?
- Proestrus
 - Estrus
 - Metestrus
 - Anestrus
21. What is another name for a female equine never bred?
- Brood mare
 - Agalactic mare
 - Wet mare
 - Maiden mare
22. Which animal is oviparous?
- Hen
 - Mare
 - Queen
 - Doe
23. Hyperlipidemia describes blood with an abnormally high level of:
- water
 - calcium
 - glucose
 - fats

24. Body tissues may look yellowish (icteric) when what organ is not functioning?
- Heart
 - Stomach
 - Lungs
 - Liver
25. Overfeeding which food item is most likely to cause obesity in birds and pocket pets?
- Lettuce
 - Beets
 - Rolled oats
 - Sunflower seeds
26. The fetus receives nutrients through the:
- umbilical cord
 - cadual vena cava
 - stomach
 - large intestine
27. Chameleons have the ability to change color by using which of the following?
- Trypsin
 - Melanin
 - Cortisol
 - Cobalamin
28. Several factors are important to include when housing rabbits to avoid disease, EXCEPT:
- light
 - drafts
 - wire flooring
 - nest boxes
29. Which clinical sign is associated with congestive heart failure?
- Hyperthermia
 - Stranguria
 - Halitosis
 - Ascites

30. Dogs at high risk for developing gastric dilation volvulus typically share what characteristic?
- Short nose
 - Long body
 - Deep chest
 - Pendulous abdomen
31. Acetaminophen, or Tylenol, is toxic to animals and damages which organ?
- Heart
 - Liver
 - Pancreas
 - Spleen
32. Certain bacterial infections and also specific nutrient deficiencies can lead to muscle spasms or twitching, otherwise known as:
- tetany
 - dystrophy
 - laxity
 - myoplasty
33. Dialysis can be performed when which organ is not functioning?
- Pancreas
 - Liver
 - Kidney
 - Gallbladder
34. Which organ absorbs the majority of nutrients from ingested food?
- Large intestine
 - Stomach
 - Esophagus
 - Small intestine
35. Which disease is not caused by a prion?
- Mad cow disease
 - Creutzfeldt-Jakob disease
 - Contagious eczema
 - Scrapie

36. Which is a tick-borne disease that causes a "bulls-eye" skin lesion, flu-like symptoms, and potentially organ damage?
- Anaplasmosis
 - Lyme disease
 - Ehrlichiosis
 - Rocky Mountain Spotted Fever
37. Blackleg, overeating disease, and pulpy kidney are all caused by various species of which pathogen?
- Campylobacter
 - Coronavirus
 - Chlamydia
 - Clostridium
38. Rickettsial diseases are transmitted by which parasite?
- Roundworms
 - Flies
 - Mosquitos
 - Ticks
39. Which is not true about urinary incontinence in dogs?
- Females have a higher incidence
 - Most respond well to estrogen
 - They often leak urine while sleeping
 - Neutering males causes an increased risk
40. Dirofilaria immitis is another name for infection of which parasite?
- Heartworm
 - Roundworm
 - Hookworm
 - Tapeworm
41. Which animal has the fastest heart rate?
- Cat
 - Goat
 - Hamster
 - Sheep

42. Which of these clinical signs can also be a cause of diabetes mellitus?
- Excessive thirst
 - Weight gain
 - Increased urination
 - Urinary tract infection
43. A jaundiced animal's gums will be which color?
- Pink
 - Purple
 - Blue
 - Yellow
44. With a spinal cord injury, what deficit causes "knuckling" and the lack of awareness of where one's limbs are in space?
- Sciatic deficit
 - Conscious proprioceptive deficit
 - Menace reflex deficit
 - Autonomic receptive deficit
45. Which antibody type, made in response to invading germs, is the only one that can cross the placental barrier in some non-ruminants, such as human beings?
- IgA
 - IgE
 - IgG
 - IgM
46. Elevated intraocular pressure is associated with which disorder?
- Glaucoma
 - Entropion
 - Blepharitis
 - Corneal ulceration

47. Prodromal, ictal and post-ictal are the 3 stages of what disorder?
- a. Gastroenteritis
 - b. Tooth decay
 - c. Seizure
 - d. Arthritis
48. What is another name for the voice box?
- a. Soft palate
 - b. Epiglottis
 - c. Pleura
 - d. Larynx
49. What is another name for the percentage of erythrocytes in the blood?
- a. Hematocrit
 - b. Leukogram
 - c. CBC
 - d. Differential
50. What describes a tumor that is not cancerous?
- a. Malignant
 - b. Benign
 - c. Metastasis
 - d. Carcinoma
51. How many chest compressions should be given per minute during dog/cat CPR?
- a. 60 - 70
 - b. 70 - 80
 - c. 100 - 120
 - d. 200 - 220
52. A dog/cat CPR cycle lasts for:
- a. 1 minute
 - b. 2 minutes
 - c. 3 minutes
 - d. 4 minutes

53. How many breaths per minute should be given during dog/cat CPR?
- 5 breaths
 - 10 breaths
 - 15 breaths
 - 20 breaths
54. What color will a dog's mucous membrane appear during cardiac arrest?
- Bluish/gray
 - Pink
 - White
 - Brown
55. These two organs are primarily responsible for removing RBC's as they age or are damaged:
- Spleen and Liver
 - Liver and Kidneys
 - Kidneys and Spleen
 - Pancreas and Liver
56. If your fluid rate is 230 ml/hr, how much fluid should your patient have received after 5.75 hours?
- ~1000 ml
 - ~1100 ml
 - ~1200 ml
 - ~1300 ml
57. Which breed of dog is ideal to be a blood donor due to tendency to have a higher than normal PCV?
- Labradors
 - German Shepherds
 - Greyhounds
 - Great Danes
58. You are monitoring a patient under anesthesia. Fluid therapy helps to:
- Lower the blood pressure
 - Prevent bleeding
 - Slow the heart rate
 - Maintain cardiac output

59. Which vein is ideal to use when drawing blood for a transfusion?
- Cephalic vein
 - Saphenous vein
 - Femoral vein
 - Jugular vein
60. Which is the most useful combination for assessing fluid loss/hydration status?
- PCV, BUN, ALT
 - PCV, plasma protein (TS), urine specific gravity
 - PCV and BUN
 - PCV only
61. What temperature should newborn pups be kept after a cesarean section?
- 78° F
 - 85° F
 - 90° F
 - 100° F
62. Surgeries lasting longer than _____ minutes have an increased risk of infection
- 20
 - 45
 - 60
 - 90
63. Which parts of the distal forelimb are removed in an onychectomy?
- Nail and proximal phalanx
 - Proximal and distal phalanx
 - Middle and distal phalanges
 - Distal phalanx and nail
64. When a dog is to be castrated, the area prepped is which location?
- Flank
 - Scrotum
 - Prescrotal prepuce
 - Midabdomen

65. An animal comes in with respiratory distress. Pleural effusion is suspected. What procedure to you initially need to prep for?
- Abdominocentesis
 - Thoracotomy
 - Thoracocentesis
 - Exploratory surgery
66. This piece of equipment should be on hand when performing an abdominocentesis to aid in finding pockets of fluid:
- X-ray
 - Ultrasound
 - CT
 - Suction
67. When scrubbing in for surgery, how long should a surgical scrub last?
- 3 minutes
 - 5 minutes
 - 7 minutes
 - 8 minutes
68. All of the following changes can be seen on a chemistry when the liver is failing EXCEPT:
- Hypoalbuminemia/hypoproteinemia
 - Increased cholesterol
 - Hypoglycemia
 - Decreased BUN
69. This cardiomyopathy can occur secondary to taurine deficiency in many animals, especially cats and Cocker Spaniels:
- Dilated cardiomyopathy
 - Hypertrophic cardiomyopathy
 - Right ventricular cardiomyopathy
 - Left ventricular cardiomyopathy

70. Lyme disease is caused by what organism?
- Rickettsia Rickettsii
 - Ehrlichia Canis
 - Borellia burgdorferi
 - Anaplasma Platys
71. What is the earliest you can detect puppies on radiographs? What about by ultrasound?
- 35 days, 10 days
 - 20 days, 45 days
 - 45 days, 20 days
 - 10 days, 35 days
72. This feline virus is closely related to canine parvovirus:
- Panleukopenia
 - FIP
 - Calicivirus
 - Herpesvirus
73. The electrical activity of the heart begins in the _____ and travels where?
- Sinoatrial Node, AV Node, Bundle of His, Purkinje Fibers
 - AV Node, Sinoatrial Node, Bundle of His, Purkinje Fibers
 - Sinoatrial Node, AV Node, Purkinje Fibers, Bundle of His
 - AV Node, Sinoatrial Node, Purkinje Fibers, Bundle of His
75. What is the stage of flea life cycle that is hardest to kill?
- Egg
 - Larvae
 - Pupa
 - Adult
76. While taking the temperature of a dog, you realize the thermometer is in the Celsius mode. The temperature reads 40° C. (A) What is the temperature in Fahrenheit? (B) Does the dog have a fever?

77. A technician has been instructed by a veterinarian to administer a dosage of Cerenia to a 36 pound dog. The dosage is 1 mg/kg SQ and the concentration is 10 mg/ml. (A) How much Cerenia should the technician administer? (B) How much would the injection cost if a 20 ml bottle is \$ 185.00?
78. A veterinarian would like to send a dog home with a diminishing dose of Prednisone. The prescription reads: Prednisone 5 mg give 1 tab by mouth q 12 hrs x 5 days, 1 tab q 24 hrs x 5 days, 1 tab q 48 hrs for 10 days (5 times). How many pills will the veterinarian send home with the patient?
79. An animal is 17.6 lb, with a calculated body surface area of 0.4 m^2 . You are to give a dosage of 375 mg/m^2 , and the solution concentration of the drug is 50 mg/ml. How many mls of medication do you give?
80. Your patient weighs 8.4 kgs, you are asked to give a 14 mg/kg dosage of a 0.8% solution. How many mls do you administer to the patient?
81. You are asked to supplement a fluid bag with 26 meq/L KCl. You check the volume in your fluid bag and see there are 700 mls of fluid remaining. How many mls of potassium do you need to add to the bag? KCl is 2 mEq/ml.
82. Your doctor has asked you make up a 1 L bag of LRS with 5% dextrose. The dextrose is 50% concentration. How many mls of LRS would you remove and then replace with dextrose?
83. You have taken the body temperature of a breeding hog that reads 107 degrees Fahrenheit. The owner of the hog needs to know the temperature in Celsius. The owner asks you to please give him the temperature in Celsius. What is the converted body temperature?
84. To prepare for disinfection of Dairy cattle stalls against Bovine Viral Diarrhea, mix a solution of an alkyl ammonium chloride in 10 gallons of water at the rate of $\frac{3}{4}$ cup of alkyl ammonium chloride per gallon of water. What is the volume of alkyl ammonium chloride mixed in 10 gallons of water? Supply your answer in ounces.

85. Sampson, a 23 pound Beagle, is brought into the veterinary hospital. What is Sampson's weight in kilograms?
86. An 80-pound Mastiff is 8% dehydrated. How much is the fluid deficit in mL?
87. Hannah brings her 20 kg tortoise into the clinic with an infection. The veterinarian instructs the technician to administer an injection of Baytril. Baytril's dosage is 10 mg/Kg of body weight per day. How much Baytril should the technician administer, if the concentration of the drug is 50 mg/mL?
88. How much will this injection cost Hannah, if a bottle of 100 ml cost \$ 110.00?
89. Use the below scenario and drug label for questions 89 A-D.

Chance, the pit-bull has been scheduled for a dental cleaning. The veterinarian has decided that Propofol is the safest anesthetic drug for him based on his age and blood chemistry values. Chance is 10 years old and weighs 75 pounds. The recommended dosage for Chance is 2.5 mg/kg.

Store between 4-25°C (40-77°F). Do not freeze. Protect from light. SHAKE WELL BEFORE USE. Discard unused portion within six hours. A0-0065/R2

PropoFlo™ (propofol) Intravenous Anesthetic Injection for Use in Dogs

5206-04-03

200 mg/20 mL (10 mg/mL)

Each mL contains 10 mg of propofol Single Dose Vial

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

IMPORTANT: Read accompanying product information for directions pertaining to use of PropoFlo™ (propofol).

NADA No. 141-098, Approved by FDA. PropoFlo™ is a trademark of Abbott Laboratories.

Product of Sweden

Manufactured for: Abbott Laboratories, North Chicago, IL 60064 USA

LOT EXP.

Abbott

333 756

- 89 A.
How much does Chance weight in kilograms?

89 B. How many milligrams of propofol will Chance need to undergo anesthesia?

89 C. How many milliliters of propofol will Chance need to undergo anesthesia?

89 D. How many mgs are in each bottle of propofol?

90. Use the below scenario and drug label for questions 90 A-D.

Daisy, an 11-year-old Jack Russell has been diagnosed with Bordetella. She has been prescribed Temaril-P to help control the coughing. Daisy weighs 5.5 kilograms. The cost of each tablet is \$ 1.48. The veterinarian wants to treat her for 4 days.

Temaril-P[®]
(trimeprazine with prednisolone)
Tablets
Antipruritic–Antitussive–Anti-inflammatory

For use in dogs

Each tablet contains trimeprazine tartrate USP 10-[3-(Di-methylamino)-2-methylpropyl]-phenothiazine tartrate (2:1 equivalent to trimeprazine, 5 mg, and prednisolone, 2 mg).

Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

1000 tablets
NADA #12-437, Approved by FDA

Recommended Dosage

Weight of Dog	Initial Dosage
Up to 10 lb	1/2 tablet, twice daily
11–20 lb	1 tablet, twice daily
21–40 lb	2 tablets, twice daily
Over 40 lb	3 tablets, twice daily

After 4 days, reduce dosage to 1/2 of the initial dose or to an amount just sufficient to maintain remission of symptoms. Individual animal response will vary and dosage should be adjusted until proper response is obtained.

LOT/EXP: 13946701

FPO: 2D - 15 mil: 13946701

zoetis

Store in a Dry, Cool Place at Temperatures Not Above 25°C (77°F). See Package Insert for Complete Directions.

zoetis
Distributed by:
Zoetis Inc.
Kalamazoo, MI 49007

0 87219 01397 7

FPO: UPC

TAKE TIME
OBSERVE LABEL DIRECTIONS

90 A. How many tablets will Daisy get per day?

90 B. How much will the treatment cost per day?

90 C. How many tablets will Daisy get for the whole treatment?

90 D. How much does Daisy weigh in pounds?

91. Use this information for questions 91 A and 91 B:
DESCRIPTION: IMPROVEST
DOSAGE AND ADMINISTRATION: IMPROVEST should be administered via subcutaneous injection into the post auricular region of the neck. Each intact male pig should receive two 2-mL doses of IMPROVEST. The first dose should be administered no earlier than 9 weeks of age. The second dose should be administered at least 4 weeks after the second dose. In case of misdosing, the animal should be re-dosed immediately.
- 91 A. A swine company contacted their local veterinarian and requested a prescription of Improvest. The company has 500 boar piglets that are 9 weeks old and prefers not to castrate them. How much drug material does the company need according to Improvest's label for the treatment?
- 91 B. How much will the entire treatment cost if the cost per pig is \$ 5.00?
92. Indicate the number of tablets prescribed for the following order:
- Rx: Clavamox tablets 375 mg
Sig: 2 tablets, P.O., BID x 10 days
93. In preparation for surgery, the veterinarian requests that you prepare a syringe of Ketamine for a 60 pound boa constrictor. The dose is 25 milligrams per kilogram with a bottle concentration of 250 milligrams per milliliter. How many milliliters are required?
94. A 900-pound horse is given Banamine for colic pain. If the dosage is 1.1 milligram per pound IV and the solution is 50 milligrams per milliliter, how much should the horse receive?
(solve to one decimal place)
95. Dr. Hatch needs to operate on a Koi fish to repair a fin. She administers Tricane Methanesulfonate (MS-222) to sedate the fish at a rate of 100 mg/L. If the fish is placed in a 15-gallon tank, how many milligrams MS-222 should the technician put in the tank?

96. In a Medical Record the abbreviation "SOAP" means:
- supply, open, apply, prepare
 - subjective, objective, assessment, plan
 - submit, observe, ask, prepare
 - scrub, open, assess, plan
97. Zoonotic diseases are:
- only contracted from a zoo animal
 - only found in veterinary clinics that work with zoo animals
 - shared between animals and plants
 - shared between animals and humans
98. The cardiovascular system is composed of:
- heart and lungs
 - lungs and trachea
 - heart and blood vessels
 - heart, lungs, and kidneys
99. In taking a history of a veterinary patient, it is important to ask open-ended questions so the client can give you important information. Which question below is an open-ended question?
- Your pet eats a lot, doesn't he?
 - Is your pet eating more than normal?
 - What are your pet's normal eating habits?
 - Does your pet eat more in the morning or in the evening?
100. A kennel cough vaccination is usually required before a dog is admitted into a:
- veterinary hospital
 - nursing home
 - boarding kennel
 - human hospital
101. The descriptive information that identifies the veterinary patient presented for evaluation is called:
- history
 - signalment
 - chief complaint
 - vital signs

102. What blood test evaluates the red blood cell (RBC) count, the size of the RBCs, amount of hemoglobin, number of platelets, total white blood cell (WBC) count and a breakdown of the types of cells present?

- a. packed cell volume
- b. complete blood cell count (CBC)
- c. chemistry profile
- d. serology

103. What is the most common clinical sign observed with salmonellosis?

- a. fever
- b. headache
- c. muscle spasms
- d. diarrhea

104. What type of connective tissue connects muscles to bones?

- a. tendon
- b. ligament
- c. cartilage
- d. blood

105. Bone marrow produces:

- a. blood cells
- b. periosteum
- c. calcium and phosphorus
- d. spongy bone

106. What term is used to describe the motion when a body part is moved closer to the body?

- a. flexion
- b. extension
- c. abduction
- d. adduction

107. What arteries supply blood to the head?

- a. carotid arteries
- b. renal arteries
- c. mesenteric arteries
- d. iliac arteries

108. The term used to describe a heart rate that is faster than normal is:

- a. tachycardia
- b. bradycardia
- c. arrhythmia
- d. atrial fibrillation

109. When oxygen levels in the blood fall, the mucous membranes of a veterinary patient may appear:

- a. red
- b. pink
- c. purple
- d. blue

110. The basic types of animal restraint used in most forms of veterinary medicine are:

- a. physical, psychological, and hypnotic
- b. traumatic, chemical, and physical
- c. chemical, hypnotic, and psychological
- d. chemical, psychological, and physical

111. What compartment of the ruminant stomach is called the true stomach?

- a. rumen
- b. reticulum
- c. omasum
- d. abomasum

112. Ovariohysterectomy is the technical term for which procedure?

- a. removal of testicles
- b. removal of ovaries and uterus
- c. removal of uterus
- d. removal of fetus

113. What is the name of the condition when one or both testes fail to descend into the scrotum?

- a. pyometra
- b. hypothyroidism
- c. urethrostomy
- d. cryptorchidism

114. When a vessel is said to constrict, what has it done?

- a. expanded in length
- b. decreased in length
- c. expanded in diameter
- d. decreased in diameter

115. Having feed available at all times is called:

- a. restricted diet
- b. free-choice diet
- c. supplemental diet
- d. total mixed diet

116. How many compartments are in a true ruminant stomach?

- a. two
- b. three
- c. four
- d. five

117. What type of anesthesia requires supplemental oxygen?

- a. local anesthesia
- b. regional anesthesia
- c. inhalation anesthesia
- d. topical anesthesia

118. The medical term for inflammation of the urinary bladder is:

- a. cystitis
- b. peritonitis
- c. dystocia
- d. uremia

119. You are instructed to give a medication SQ. This abbreviation means you give the medication via:

- a. intraperitoneal injection
- b. intramuscular injection
- c. subcutaneous injection
- d. intravenous injection

120. A benefit of rehabilitation for veterinary patients is:

- a. loss of all chronic pain
- b. increased mobility
- c. weight gain
- d. loss of all acute pain

121. Bones are connected to other bones by:

- a. tendons
- b. ligaments
- c. muscles
- d. skin

122. Which of the following items is defined as "difficult birth"?

- a. dyspnea
- b. dysphagia
- c. dystocia
- d. dyslexia

123. Sterilization is defined as the:

- a. destruction of all organisms on an object
- b. reduction of the number of pathogenic microorganisms on an object
- c. reduction of the number of microorganisms on an object to an acceptable public health standard
- d. removal of all visible signs of dirt

124. The decision to prescribe medications to a patient is the responsibility of the:

- a. veterinarian
- b. credentialed veterinary technician
- c. veterinary assistant
- d. owner

125. A flotation test to look for internal parasites is conducted on which of the following?

- a. urine
- b. feces
- c. blood
- d. saliva

126. Which organ is most involved in the excretion of water-soluble drugs?

- a. liver
- b. stomach
- c. kidney
- d. brain

127. Which nutrient is the most important for survival?

- a. water
- b. protein
- c. carbohydrate
- d. vitamins

128. Which disease is caused by a virus?

- a. salmonellosis
- b. rabies
- c. tetanus
- d. ringworm

129. The long bone in the forelimb of a horse between the scapula and the radius is the:

- a. femur
- b. ulna
- c. humerus
- d. tibia

130. Everyone who is in the surgery room should be wearing:

- a. street clothes
- b. sterile gloves and gown
- c. scrubs
- d. protective eyewear

131. Hip dysplasia is the developmental problem of the:
- a. coxofemoral joint
 - b. tibiotarsal joint
 - c. sacroiliac joint
 - d. carpal joint
132. What is one of the innate, or primary body defenses against disease causing organisms?
- a. skin
 - b. antibiotics
 - c. antigens
 - d. lymph nodes
133. The term for parturition in swine is called:
- a. kindling
 - b. littering
 - c. letting
 - d. farrowing
134. A special dietary component that is needed by some birds to aid in digestion is called:
- a. grit
 - b. cuttle
 - c. mash
 - d. goat
135. Which of the following would be prescribed for a veterinary patient to directly fight a bacterial infection?
- a. analgesic
 - b. antibiotic
 - c. anti-inflammatory
 - d. antiprotozoal
136. Cystocentesis is the sterile collection of:
- a. blood
 - b. urine
 - c. abdominal fluid
 - d. cerebrospinal fluid

137. Guinea pigs cannot synthesize which vitamin?

- a. A
- b. B12
- c. C
- d. K

138. The most common cause of viral enteritis in the canine is:

- a. hepatitis virus
- b. rabies virus
- c. parvo virus
- d. herpes virus

139. Hematuria is the clinical term for finding what in the urine?

- a. pus
- b. crystals
- c. protein
- d. blood

140. Drugs that have the greatest potential for being abused or addictive are classified by the DEA as:

- a. Schedule I
- b. Schedule II
- c. Schedule III
- d. Schedule IV

141. Which medical term is used for inflammation of the sac around the heart?

- a. cephalitis
- b. arthritis
- c. pericarditis
- d. bradycardia

142. Strangles, a common, highly contagious bacterial respiratory disease in the horse is caused by:

- a. aspergillus fungus
- b. equine herpes virus
- c. streptococcus equi bacterium
- d. equine encephalitis virus

143. The correct medical term for neutering a male animal is:

- a. orchiotomy
- b. ovariectomy
- c. orchiectomy
- d. cystotomy

144. Ears raised, mouth opened in a relaxed grin, lowered front half of body in a "bowing" posture, and tail wagging is considered to be which type of canine visual communication?

- a. aggressive
- b. play
- c. submission
- d. relaxed

145. Your place of employment offers dog-boarding services and has the ability to accommodate the specific needs of each pet and family.

The daily rates for 8 to 24-hour boarding are:

Under 20 lbs - \$25.00

20 - 50 lbs - \$26.00

Over 50 lbs - \$27.00

Dogs can be walked for an additional fee of \$5.00 per dog for each walk around the property. Medications are administered or applied at a rate of \$0.50 per dose. Two or more dogs in the same kennel receive a 10% discount on all boarding services.

A client has two dogs that are to be housed together. One is a 5.5-pound poodle named Timmy, and the other is a 62-pound mixed breed named Max. The client instructs you that Max needs to be given a medication once a day for 4 days and that each dog is to be walked once a day. The client boarded the dogs from Monday morning until Sunday evening. Taxes are included in all prices quoted. You are responsible for billing the client. What is the total charge for all boarding services?

- a. \$437.50
- b. \$436.00
- c. \$427.00
- d. \$392.40

146. A veterinary assistant's gross income per year is \$27,461.00. After a raise, her gross yearly salary increases to \$28,284.83. What is the percentage increase in her raise?
(express in % with up to one decimal place)

- a. 1.0 %
- b. 3.0 %
- c. 8.8 %
- d. 25.0 %

147. To prepare for disinfection of hard non-porous surfaces against canine parvovirus, mix a solution of Clorox® Regular-Bleach in 2.5 gallons of water at the rate of 3/4 cup of bleach per 1 gallon of water. What is the volume of bleach added to 2.5 gallons of water?

- a. 30 fl. oz
- b. 15 fl. oz
- c. 1 $\frac{3}{4}$ cups
- d. 1 $\frac{1}{2}$ cups and 2 tbsp

148. You have taken the body temperature of a market hog that reads 38 degrees Celsius. The owner of the hog does not understand Celsius and asks you to convert it to Fahrenheit. What is the converted body temperature?

- a. 100.4 °F
- b. 104 °F
- c. 102.5 °F
- d. 98.8 °F

149. You are directed to take a weight on a client's dog. The English Mastiff named Sophia weighs 85.90 kg. How much does Sophia weigh in pounds?

- a. 8.59 lbs
- b. 85.90 lbs
- c. 18.98 lbs
- d. 188.98 lbs

150. The doctor diagnosed pinkeye in a 450-pound heifer calf and prescribed Nuflor® for the treatment. The dosage on the label is 20 mg/kg or 20 milligrams of drug per kilogram of body weight. The concentration of Nuflor® is 300 mg/ml. What dose of Nuflor® will be administered? (solve to one decimal place)
- 13.7 ml
 - 137.0 ml
 - 10.2 ml
 - 4,100.0 ml
151. The veterinarian informs you that the patient has a bite wound and will require antibiotics. A common antibiotic, cefazolin, is administered to help fight infection. Cefazolin is administered at a dosage of 22 mg/kg. The patient weighs 44 pounds. What is the dose of cefazolin for this animal?
- 0.44 mg
 - 4.4 ml
 - 440 mg
 - 968 mg
152. Methimazole, a medication used to treat hyperthyroidism in cats, is available as a transdermal gel for owners who are unable to medicate their cat orally. Transdermal methimazole is compounded at a concentration of 50 mg/ml and is available in one ml syringe. The owners are to apply 0.1 ml of the medication to the internal ear pinna every 12 hours. How many days of medication is present in the 1 ml syringe?
- 3 days
 - 5 days
 - 8 days
 - 10 days
153. How many milliliters (ml) are in 9 ounces (oz) of liquid?
- 2.70 ml
 - 270 ml
 - 900 ml
 - 9000 ml

154. The veterinarian has ordered 0.5 grams of cefazolin to be given intravenously (IV). Cefazolin is packaged in a dry form of 1 gram, and the package directions state to add 2.5 ml sterile water to reconstitute the dry volume to a liquid volume of 3 ml. How many milliliters of the suspension contain 0.5 grams of cefazolin?

- a. .5 ml
- b. 0.15 ml
- c. 1.5 ml
- d. 150 ml

155. The doctor's order reads: "Amoxicillin 225 mg p.o., q12 hrs." The bottle from the pharmacy is labeled: "250 mg = 5 ml." How many milliliters would you give per dose?

- a. 0.45 ml
- b. 4.5 ml
- c. 45 ml
- d. 450 ml

156. Indicate the number of tablets prescribed for the following order:

Rx: Metronidazole tablets 50 mg

Sig: 2 tablets, P.O., BID x 10 days

- a. 10 tablets
- b. 20 tablets
- c. 30 tablets
- d. 40 tablets

157. Proper ventilation in a closed animal facility is important for all of the following EXCEPT:

- a. provides fresh oxygen
- b. flushes out microbes
- c. allows proper lighting
- d. removes odors

158. Bone types include:

- a. long, short, irregular, and flat
- b. long, short, irregular, and round
- c. long, short, regular, and flat
- d. long, short, regular, and round

159. The scientific name for the dog species is:

- a. *Canis lupus*
- b. *Canis familiaris*
- c. *Canis domestica*
- d. *Canis carnivora*

160. Which of the following is not a major mineral?

- a. Iron
- b. Calcium
- c. Potassium
- d. Chloride

161. In a vet clinic, which of the following is the most common kind of restraint?

- a. Psychological
- b. Physical
- c. Chemical
- d. Hypnosis

162. All of the following are true about rabies EXCEPT:

- a. it is caused by a virus
- b. it is also known as hydrophobia
- c. it only occurs in mammals
- d. it can be treated with antibiotics

163. Dermatitis is the inflammation of the _____

- a. skin
- b. muscle
- c. lungs
- d. intestines

164. The most essential part of every animal's diet is:

- a. fats
- b. carbohydrates
- c. vitamins
- d. water

165. The prefix _____ means "away from"

- a. ad-
- b. ab-
- c. ex-
- d. endo-

166. The term for lack of development of an organ or a cell is:

- a. aplasia
- b. hypoplasia
- c. neoplasia
- d. anaplasia

167. An example of a mesocephalic dog breed is:

- a. pug
- b. collie
- c. greyhound
- d. labrador

168. What type of fracture has an angular break diagonal to the long axis of the bone?

- a. greenstick
- b. comminuted
- c. oblique
- d. transverse

169. When the hocks of the hindlegs are close to each other, while the feet are far apart ("cow-hocked"), the legs are said to have a ___ deformity.

- a. valgus
- b. varus
- c. transverse
- d. avulsion

170. During molting, hens will decrease egg production because their bodies are depleted of:

- a. fiber
- b. Vitamin E
- c. Zinc
- d. Calcium

171. Controlled substances are kept in a locked cabinet and are regulated by:

- a. IACUC
- b. DEA
- c. FDA
- d. AWA

172. Medical records include all of the following except:

- a. SOAP
- b. consent forms
- c. POVMR
- d. OSHA

173. Most human directed aggression in dogs is:

- a. dominance
- b. from abuse
- c. fear related
- d. breed related

174. Abnormal respiratory sounds include all of the following except:

- a. wheezes
- b. gurgling
- c. crackles
- d. murmurs

175. Protein, fats, and _____ are nutrients that supply energy.

- a. water
- b. carbohydrates
- c. fiber
- d. vitamins

176. The average gestation length of a female cat is:

- a. 45 days
- b. 65 days
- c. 55 days
- d. 75 days

177. Increased serum glucose may indicate all the following except:

- a. Addison's disease
- b. excitement
- c. diabetes mellitus
- d. stress

178. _____ media are growth media that prevent the growth of some types of organisms and are used to facilitate isolation of organisms from mixed cultures.

- a. Enrichment
- b. Differential
- c. Selective
- d. Transport

179. Treatment for feline heartworm disease includes:

- a. adulticide
- b. microfilaricide
- c. both a and b
- d. no safe and effective treatment

180. Clinical signs in neonate patients that require immediate attention include all of the following EXCEPT:

- a. hypothermia
- b. dehydration
- c. weight gain
- d. hypoglycemia

181. All of the following are examples of holistic medicine except:

- a. rehabilitation
- b. chiropractic
- c. acupuncture
- d. vaccines

182. There are some drugs that are safe to deliver through an endotracheal tube in an emergency situation. They are easily remembered through the acronym "NAVEL." The "A" stands for:
- a. atropine
 - b. acetaminophen
 - c. acepromazine
 - d. atipamezole
183. Monitoring the depth of anesthesia is most difficult in which of the following species?
- a. cats
 - b. turtles
 - c. dogs
 - d. pigs
185. _____ are believed to be the first domesticated animals.
- a. Cats
 - d. Dogs
 - c. Cows
 - d. Horses
186. _____ investigate diseased tissue in humans and animals.
- a. Geneticists
 - b. Cytologists
 - c. Zoologists
 - d. Histopathologists
187. The _____ regulates the commercial pet food industry and ensures that foods are uniformly labeled and marketed.
- a. AAFCO
 - b. OSHA
 - c. USDA
 - d. IACUC

188. _____ in dogs cause(s) a cloudy, white opacity of the lens. This disease may be hereditary or nonhereditary and usually causes blindness when fully developed.
- glaucoma
 - retinal atrophy
 - cataracts
 - corneal abrasions
189. _____, also referred to as feline infectious enteritis or cat distemper, is caused by a parvovirus or DNA virus.
- Panleukopenia
 - Rhinotracheitis
 - Calicivirus
 - Pneumonitis
190. The Boston terrier is considered part of what AKC group?
- Toy
 - Terrier
 - Non-Sporting
 - Herding
191. Correct rabbit restraint is important because when frightened they can kick hard enough to fracture their:
- foot
 - tibia
 - radius
 - spine
192. The most important disease in hamsters is "hamster enteritis," also referred to as:
- snuffles
 - parvo
 - scours
 - wet tail

193. _____ species of rat was the major reservoir for the black plague that killed more than one-fourth of the European population during the 1300s.

- a. *Rattus rattus*
- b. *Rattus auratus*
- c. *Rattus norvegicus*
- d. *Rattus unguiclatus*

194. _____ are known as the powerhouse of the cell.

- a. lysosomes
- b. endoplasmic reticulum
- c. golgi apparatus
- d. mitochondria

195. Tendons connect _____ to _____ .

- a. muscle; bone
- b. bone; bone
- c. muscle; muscle
- d. muscle; ligaments

196. Tachycardia describes a _____ heart rate.

- a. fast
- b. normal
- c. slow
- d. non existent

197. What factor controls the basal rate of respiration?

- a. carbon dioxide level in the blood
- b. size of the lungs
- c. oxygen level in the blood
- d. respiratory center of the brain

198. What species of animal has lobulated kidneys?

- a. cat
- b. horse
- c. dog
- d. cow

199. _____ is the hardest substance in the body.

- a. Dentin
- b. Bone
- c. Enamel
- d. Cementum

200. How many cranial nerves are in the central nervous system of a dog?

- a. 4
- b. 8
- c. 12
- d. 16

201. Lack of vitamin D prevents normal absorption of calcium and prevents adequate deposition in the bone. If this deficiency occurs in the young it results in a condition known as:

- a. rickets
- b. Addison's disease
- c. brittle bone
- d. Cushing's disease

202. Removing the sharp edges of a horse's teeth is called:

- a. filing
- b. trimming
- c. floating
- d. curetting

203. Inanimate objects that can facilitate the transfer of diseases are known as: (example: water or feed troughs)

- a. eukaryotes
- b. fomites
- c. prokaryotes
- d. vector

204. What causes ringworm?

- a. fungi
- b. prions
- c. bacteria
- d. worms

205. All of the following are examples of zoonotic diseases EXCEPT:

- a. cutaneous larva migrans
- b. Mad cow disease
- c. toxoplasmosis
- d. Bovine viral diarrhea (BVD)

207. _____ is the procedure in which all micrororganisms are destroyed.

- a. Disinfection
- b. Sanitizing
- c. Sterilization
- d. Cleaning

208. Use the following information to answer questions 208, 209, 210.

Give 1 cc/15 lb of Panacur to a 28 kg dog. Repeat this dose once a day for 3 days. On hand: Panacur 100 mg/ml.

How many mls per dose?

209 How many mls/day?

210. How many mls per total treatment?

211. Use the following information for questions #211, #212, #213.

Give 10 mg/lb of Cephalexin to a 25 lb dog. Give this dose two times a day for 10 days.

On hand: Cephalexin 250 mg/ capsule.

How many capsules per dose?
(express with up to one decimal)

212. How many capsules per day?
(express with up to one decimal)

213. How many capsules for the whole treatment?
(express with up to one decimal)

214. Using the following information answer questions #214 and #215.

Drug: Immiticide - 20 mg/ml; Dose: Give 2 mg/lb; Dog: 42 lbs; Cost: \$20/cc

How many mls Immiticide are required for dog?

215. What is the cost of the injection of Immiticide?

216. Tara brought her 1 kg guinea pig to the vet. After the diagnosis, Dr. Puia prescribed medication that requires a dose of 10 mg/lb, and the medicine is sold as follows: 20 mg/tablet.

How many tablets should Tara use to medicate her guinea pig?

217. Tom brought Tiny his 5 lb dog to the vet clinic. The diagnosis called for an Ace Prescription. The dosage is 0.025 mg/lb of Ace to a 5 lb dog. On hand: Ace 10 mg/ml.

How many mls does Tiny get? (express up to four decimals)

218. The veterinary assistant records the body temperature of a miniature horse at 102.6 degrees Fahrenheit. What is the temperature in Celsius?

219. How many ml of a 10% stock solution of hydrogen peroxide would you need to dilute with distilled water to create 250 ml solution of 2% hydrogen peroxide?

220. A horse requires intravenous fluids given at a rate of 500 ml/hour. How many liters will the horse receive after 7 hours?

221. You ask a client to give her dog 90 ml of water every hour. How many ounces does this represent in the U.S.?

222. The vet clinic you work for gives a 15% discount on spays and neuters for animals that were adopted from the local animal shelter. An OHE includes a physical exam, CBC, Chem panel, the procedure, staff and supplies. The following is a break down on cost: Physical Exam \$15, CBC and Chem Panel \$65, OHE procedure \$95, OHE staff and supplies \$75.

How much would an OHE cost someone that adopted a dog?

223. What is removed when "cleaning a cow"?

- a. Retained placenta from uterus
- b. Nail from hoof wall
- c. Crabapple from esophagus
- d. Feces from rectum

224. Which of the following is not a role of sodium?

- a. Nerve transmission
- b. Fluid regulation
- c. Acid-base balance
- d. Hemoglobin formation

225. Which heart chamber has the thickest wall?

- a. Right atrium
- b. Left atrium
- c. Right ventricle
- d. Left ventricle

226. Which term describes a hypersensitivity reaction involving pruritis with secondary dermatitis?

- a. Abrasion
- b. Abscess
- c. Alopecia
- d. Atopy

227. What part of the eye contains rods and cones?

- a. Retina
- b. Sclera
- c. Iris
- d. Pupil

228. Copper toxicity most affects what organ?

- a. Kidney
- b. Liver
- c. Intestines
- d. Uterus

229. Which is NOT a characteristic of a reptile's heart?

- a. Three chambers
- b. No atria
- c. Associated with a low metabolic rate, so reptiles depend on their environment for warmth
- d. Two ventricles

230. Which clinical sign is associated with diabetes mellitus?

- a. Drinking less frequently
- b. Urinating more frequently
- c. Gaining weight
- d. Increased stool

231. The horse is a monogastric animal that can still digest grass. What organ makes this possible?

- a. Stomach
- b. Salivary gland
- c. Small intestine
- d. Cecum

232. Which gland secretes epinephrine and norepinephrine?

- a. Adrenal gland
- b. Thyroid gland
- c. Sebaceous gland
- d. Pituitary gland

233. Pacing, inability to settle, and self-mutilation are LEAST likely to be clinical signs of what?

- a. Storm phobia
- b. Hypothyroidism
- c. Separation anxiety
- d. Confinement distress

234. What is NOT a characteristic of periosteum?

- a. Provide cells necessary to repair damage
- b. Found at the ends of bones in the joints
- c. Thin layer of connective tissue
- d. Connects tendons and ligaments to bones

235. What organ is NOT part of the lymphatic system?

- a. Lymph nodes
- b. Tonsils
- c. Spleen
- d. Gallbladder

236. What is another name for milk fever?

- a. Hyperkalemia
- b. Hypercalcemia
- c. Hypokalemia
- d. Hypocalcemia

237. What should an owner avoid when managing a pet with separation anxiety?

- a. Food toys
- b. Music
- c. Shock collar
- d. White noise machine

238. What hormone controls circadian rhythm?

- a. Estrogen
- b. Melatonin
- c. Thyroxine
- d. Calcitonin

239. What is the process of bringing up food material from the stomach to the mouth for further chewing?

- a. Mastication
- b. Rumination
- c. Defecation
- d. Eructation

240. Which animal is a carnivore?

- a. Cat
- b. Rabbit
- c. Horse
- d. Goat

241. Which infectious disease could be so devastating to the poultry industry that veterinarians must report suspected cases to the appropriate authorities?

- a. Newcastle disease
- b. Trichomoniasis
- c. Bumblefoot
- d. Pasteurellosis

242. What is one reason why large breed puppies should eat large breed puppy food?

- a. It has a lower calcium level to reduce the risk of bone deformities.
- b. The kibble is smaller which decreases the choking hazard.
- c. It is more energy dense to support rapid growth.
- d. Large breed puppies require a different set of nutrients than small breed puppies.

243. Which organ is located in the retroperitoneal space?

- a. Stomach
- b. Liver
- c. Kidney
- d. Pancreas

244. Cats are at risk of developing hepatic lipidosis after a prolonged period of what?

- a. Excess drinking
- b. Restricted exercise
- c. Antibiotic use
- d. Anorexia

245. Which of these is an infectious disease that mosquitoes transmit to horses?

- a. West Nile virus
- b. Potomac horse fever
- c. Strangles
- d. Equine protozoal myelitis

246. What is the term used to describe the birthing process in swine?

- a. Farrowing
- b. Freshening
- c. Kidding
- d. Kindling

247. Which of the following terms refers to turning a buck into a wether?

- a. Ostectomy
- b. Oophorectomy
- c. Orchidectomy
- d. Ovariohysterectomy

248. What does a mast cell tumor produce?

- a. Antioxidant
- b. Histamine
- c. Struvite
- d. Chloride

249. Floating the teeth should be part of a wellness plan for which animal?

- a. Cattle
- b. Goats
- c. Horses
- d. Swine

250. What is the gelatinous center of an intervertebral disc?
- Nucleus pulposus
 - Cauda equine
 - Annulus fibrosis
 - Transverse process
251. What is another name for a blood clot?
- Fibroid
 - Neoplasia
 - Lipoma
 - Thrombus
252. Hand raising which male animal can lead to dangerously aggressive behavior known as Berserk Male Syndrome?
- Goat
 - Parrot
 - Hamster
 - Llama
253. Which birthing presentation is generally considered "normal" in swine but not in cattle?
- Cranial
 - Caudal
 - Transverse
 - Breech
254. Which diagnostic test is used to determine the presence of mange mites?
- Skin scraping
 - Fluorescein dye
 - Excisional biopsy
 - Intradermal skin testing
255. Which term means a slower than normal heart rate but normal rhythm?
- Bradycardia
 - Tachycardia
 - Myocardia
 - Pericardia

256. Which illness causes the body to destroy its own cells?
- Cystitis
 - Pneumonia
 - Autoimmune disease
 - Pyoderma
257. Which disease is zoonotic and transmitted via direct contact of contaminated water and soil?
- Parvovirus
 - Q Fever
 - Brucellosis
 - Leptospirosis
258. Which procedure can help determine whether or not an animal has glaucoma?
- Fluorescein stain
 - Tonometry
 - Conjunctival scrape
 - Schirmer tear test
259. Enteritis is probably the most common cause of death in rabbits. What part of the body is inflamed with this group of diseases?
- Upper respiratory tract
 - Urinary tract
 - Intestinal tract
 - Reproductive tract
260. A difficult birth is called:
- Dysplasia
 - Dementia
 - Diestrus
 - Dystocia
261. Hyperventilation may lead to a decrease in what?
- Respiratory rate
 - Blood pH
 - Carbon dioxide levels in blood
 - Metabolism

262. A producer vaccinates his sheep with tetanus antitoxin at the time of banding. What is true about the protection of antitoxin?
- The animal develops an active immunity against the bacterium
 - It provides long-term protection.
 - It requires a booster vaccine in a month.
 - The benefit starts immediately after the injection.
263. Which bacterium is the causative agent for "over-eating disease"?
- Clostridium chauvoei
 - Clostridium perfringens
 - Clostridium septicum
 - Clostridium tetani
264. What would be given to help kill roundworms in a puppy?
- Anthelmintic
 - Antiemetic
 - Antipruritic
 - Antiseptic
265. Minimizing stress, especially in production animals, can help prevent disease. Which is the least likely to cause an animal enough stress to cause disease?
- Warm and humid barn
 - Transport to a livestock show
 - Moving animals from feedlot to pasture
 - Feeding twice the normal grain ration
266. What is true about a cutting needle?
- It pierces, not cuts, through tissue.
 - It should be used for delicate tissue.
 - It doesn't come in swaged form.
 - It typically has 2-3 sharp edges.

267. An equine patient is undergoing surgery for an intestinal volvulus. Which of the following will the surgeon perform after removing a section of dead bowel?
- Cystocentesis
 - Abomaspexy
 - Anastomosis
 - Castration
268. A nephrolith is a stone located in which organ?
- Gallbladder
 - Pancreas
 - Duodenum
 - Kidney
269. Which treatment would not be considered when first managing feline hyperthyroidism?
- Thyroid supplementation
 - Radioactive iodine
 - Surgical excision
 - Thyroxine blocker
270. Use the information below to answer Questions #270 - #274.

Mrs. Kidd brings in her dog, Killer. Dr. Peelman has diagnosed Killer with a urinary tract infection. She has prescribed SMZ-TMP. Killer is Chow and weighs 70 lbs. The dose is 30 mg/kg once every 12 hours. Killer will need to be treated for 10 days. Each tablet costs \$0.75 and there is a one-time dispensing fee of \$7.50.



What is Killer's weight in kilograms?

271. How many milligrams of sulfamethoxazole is in each tablet?
272. How many tablets per dose will be given to Killer?
273. How many tablets will need to be sent home for Killer's entire course of treatment?
274. What is the total medication cost to Mrs. Kidd?
275. Matt brings his newborn foal, Chayleigh in for dehydration. Chayleigh weighs 110 lb. The veterinarian instructs the technician to administer fluids at the rate of 70 ml/kg/24 hours. Use this information for Questions #275 and #276.
- What is the total volume Chayleigh should receive in 24 hours?
276. From the question above, calculate Chayleigh's rate in drops/minute. Your clinic uses 10 drop/mL drip set for fluid administration. Round to the nearest whole drop.
277. Use the image below for Questions #277 and #278.



How many total milligrams are in the bottle?

278. What is the recommended dose in milligrams for a 12 kg dog?
279. The Office Manager at Catoctin Veterinary Clinic is ordering supplies for the clinic. She purchases a case of calf colostrum with 12 cartons for \$135.00. How much would a customer pay per carton with a 45% markup?
280. The Ark Animal Hospital offers a 5% discount to clients on services for two or more pets. This discount does not apply to administered or dispensed medications or retail product purchases. Ms. Birch brought in her two dogs: Chester and Mo, and her two cats: Caty Beth and Colton for their annual physical examinations and vaccinations. Before the discount, the total charges for services and dispensed medication are \$652. The annual dose for all pets (48 doses) of a heartworm preventative drug is \$11/dose. What is the total bill after the discount is applied?
281. The kennel assistant at Noah's Clinic is instructed to dilute Roccal-D disinfectant to a quart spray bottle. The solution has a dilution of 2 oz to 1 gallon of water. How many milliliters of Roccal-D do you mix with 2 quarts of water? (1 ounce is equivalent to about 30 mL)
282. Bambino brings his 2 kg iguana into the clinic with an infection. The veterinarian instructs the technician to administer an injection of Baytril. Baytril's dosage is 5 mg/lb of body weight per day. How many milliliters of Baytril should the technician administer, if the concentration of the drug is 30 mg/mL? Round your answer to the nearest 10th.
283. Jose was instructed to radiograph a boston terrier's right forelimb to confirm a suspected fracture. He wanted to know how changing the source to image distance (SID) to half the original distance would affect the amount of x-rays produced, which is measured in milliamperage second (mAs). The original mAs was 5, the new SID is 20. What is the new mAs?

Formula: $\text{Old mAs} \times \frac{\text{New SID}}{\text{Old SID}} = \text{New mAs}$

284. A dog weighing 40 kg needs to be treated with a drug at a dose rate of 2 mg/lb/day. The solution available is 2%. Calculate the volume in ml of the daily injection to give the correct dose.
(solve to one decimal place)

285. Use the following information for questions #285 and #286.

A 43 pound Australian Shepherd is 9% dehydrated. How much is the fluid deficit in mL?

Use the formula: Body weight (lbs) x percent dehydration (decimal) x 500.

286. For the previous question, using a 10 drop/mL drip set for fluid administration, calculate the drops/second over a 24 hour period. administration, calculate the drops/second needed to rectify fluid deficit over a 24 hour period (solve to 2 decimal places)