|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. An appropriate unit to measure the length of a football field would be the meter.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. Using a unit of mg to measure the mass of a premature infant would not be appropriate because the mass of the infant would be a very large number.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. The memory capacity of a flash drive is measured in **giga**bytes so that the capacity can be expressed using simple integers.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. If the following represents a syringe that measures in cc’s (cm3), the volume indicated by the end of the plunger would be correctly recorded as 5.2 cc.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. The average of the following volume measurements is 15.5 mL.

|  |
| --- |
| Volume Measurements |
| 15.7 mL |
| 15.2 mL |
| 15.9 mL |
| 15.6 mL |
| 15.3 mL |

.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. To convert feet to inches, you should multiply by the factor shown below.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. To convert micrograms to grams, you should multiply by 1,000,000 g/μg.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. A patient weights 220 lbs. A medication for this patient is supposed to be taken using a dosage of 3 mg per kg per day. The correct dose for this patient is 3000 mg per day.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. A pharmaceutical solution of penicillin contains 125 mg of penicillin in 3 mL. The two conversion factors that express this relationship are: and

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. A 20.00 mL urine sample of a patient has a mass of 20.70 g. This patient is most likely drinking very large amounts of water.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. A Celsius degree is the same size as a Kelvin degree.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. One advantage of the Kelvin system is that it is impossible to have temperatures below zero.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. The lowest temperature ever recorded on earth was –128.6°F. The temperature is equivalent to – 89.2 Κ.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. The normal range (adult) for specific gravity of urine is 1.020 - 1.028 g/mL

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. If a patient stands 6 feet tall, their height can also be expressed as 1828.8 cm.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. If an order read: NS (normal saline solution) 1000 mL to be given intravenously over 8 hrs. 125 mL of NS should be administered every hour.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. The normal range (adult) for specific gravity of urine is 1.010 - 1.048 g/mL.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. If the specific gravity of a sample of urine tested higher than normal, this would indicate dilution.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. Consider the image below.The smallest division on the ruler is a cm.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. Consider the image showing a sample of modeling clay.The density of the clay remains constant through the changes shown.

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | True |

 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. The following statement is correct based on the size of the measurement.“My cup of coffee contains 500 L.”

|  |  |  |
| --- | --- | --- |
|   | a.  | True |
|   | b.  | False |

|  |  |
| --- | --- |
| *ANSWER:* | False |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. The base unit of length in the metric system is the

|  |  |  |
| --- | --- | --- |
|   | a.  | mil. |
|   | b.  | millimeter. |
|   | c.  | foot. |
|   | d.  | meter. |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. Which of the following is **not** a base unit of the metric system?

|  |  |  |
| --- | --- | --- |
|   | a.  | g |
|   | b.  | g/L |
|   | c.  | L |
|   | d.  | All are base units. |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. The prefix centi- denotes what fraction of a base unit?

|  |  |  |
| --- | --- | --- |
|   | a.  | 1/10 |
|   | b.  | 1/100 |
|   | c.  | 1/1000 |
|   | d.  | 100 |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. The mass of an object is

|  |  |  |
| --- | --- | --- |
|   | a.  | the force between the object and the earth. |
|   | b.  | a measure of the amount of matter in the object. |
|   | c.  | the amount of space the object occupies. |
|   | d.  | depends on the location of the object on Earth. |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. In which of the following are the masses given in the correct order?

|  |  |  |
| --- | --- | --- |
|   | a.  | cg > mg > g >kg |
|   | b.  | cg > g > kg > mg |
|   | c.  | kg > g > cg > mg |
|   | d.  | mg > cg > g > kg |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. Which of the following is the smallest number?

|  |  |  |
| --- | --- | --- |
|   | a.  | 5 × 103 |
|   | b.  | 3 × 104 |
|   | c.  | 2 × 10–5 |
|   | d.  | 7 × 10–6 |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28. The land surface area of the earth is approximately 1.49 × 108 km2. Which of the following is the correct way to write this in conventional notation?

|  |  |  |
| --- | --- | --- |
|   | a.  | 0.00000000149 km2 |
|   | b.  | 149,000,000 km2 |
|   | c.  | 14,900,000,000 km2 |
|   | d.  | none of these |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. Which of the following set-ups will allow you to calculate the cost of fruit in dollars per gram, if the price is given as 0.79 dollars per pound?

|  |  |  |
| --- | --- | --- |
|   | a.  |  |
|   | b.  |  |
|   | c.  |  |
|   | d.  |  |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. How many minutes are in a 30 day month? [Assume exactly 24 hours in a day]

|  |  |  |
| --- | --- | --- |
|   | a.  | 7.20 × 102 minutes |
|   | b.  | 4.32 × 104 minutes |
|   | c.  | 2.59 × 106 minutes |
|   | d.  | 3.11 × 107 minutes |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31. A common piece of laboratory glassware is a 125 mL beaker. What is the volume of this piece of glassware in the English system of units? [1 quart = 0.946 L = 32 fl oz]

|  |  |  |
| --- | --- | --- |
|   | a.  | 0.423 fl oz |
|   | b.  | 0.423 quarts |
|   | c.  | 4.23 fl oz |
|   | d.  | 4.23 quarts |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32. A particular model of hybrid car can travel 53.0 miles/gallon of gas. What is this fuel efficiency expressed in the metric system? [1 quart = 0.946 L; 1 mile = 1.609 km]

|  |  |  |
| --- | --- | --- |
|   | a.  | 8.71 km/L |
|   | b.  | 20.2 km/L |
|   | c.  | 22.5 km/L |
|   | d.  | 90 km/L |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. A tablet contains 250 mg of penicillin while the solution form of the same antibiotic contains 250 mg of penicillin/5 mL. If a doctor was to prescribe that one-half of a scored tablet be taken four times a day, how many mL of the solution would be equivalent to this daily dosage?

|  |  |  |
| --- | --- | --- |
|   | a.  | 5.0 mL |
|   | b.  | 20. mL |
|   | c.  | 2.5 mL |
|   | d.  | 10. mL |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 34. An intern made an error and gave a patient a dose of 500 μg rather than 500 mg of a drug. Which of the following is true?

|  |  |  |
| --- | --- | --- |
|   | a.  | The patient received an overdose by a factor of 1000. |
|   | b.  | The patient received an overdose by a factor of 100. |
|   | c.  | The patient received an underdose by a factor of 1000. |
|   | d.  | The patient received an underdose by a factor of 100. |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 35. A penicillin derivative is used to treat infections with an adult 24-hour dosage of 35 mg/kg of body mass. This is to be given in three injections daily. This antibiotic is prepared by the pharmacy in solution form with a concentration of 130 mg/5mL. What volume in milliliters should be given in each injection to an adult with a mass of 12.5kg?

|  |  |  |
| --- | --- | --- |
|   | a.  | 5.6 mL |
|   | b.  | 17 mL |
|   | c.  | 50 mL |
|   | d.  | 0.32 mL |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36. Which of the following is true of the relationship between density and specific gravity?

|  |  |  |
| --- | --- | --- |
|   | a.  | They have different numerical values and different units. |
|   | b.  | They have nearly the same numerical value and the same units. |
|   | c.  | They have nearly the same numerical value but specific gravity is dimensionless. |
|   | d.  | They have the nearly same units but different numerical values. |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37. The densities of the coinage metals (copper, silver and gold) are as follows:copper = 8.95 g/mLsilver = 12.59 g/mLgold = 19.32 g/mLA sample of material is found to have a mass if 33.03 grams, and have a volume of 2.624 mL. This is a sample of which of the coinage metals?

|  |  |  |
| --- | --- | --- |
|   | a.  | copper |
|   | b.  | silver |
|   | c.  | gold |
|   | d.  | It is not one of the coinage metals. |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 38. Aluminum has a density of 2.70 g/ mL. What volume is occupied by a block of aluminum that weighs 4.32 kg?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | 0.000625 mL | b.  | 0.625 mL |
|   | c.  | 1.60 mL | d.  | 1.60 L |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 39. In an experiment a solid sphere is placed in a cylinder containing the organic solvent cyclohexane (density = 0.778 g/mL).Based on this picture, the sphere has a density:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | greater than 0.778 g/mL | b.  | less than 0.778 g/mL |
|   | c.  | about the same as 0.778 g/mL | d.  | The image does not provide enough information to answer. |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40. If urine has a density of 1.08 g/mL, what would be the mass of a 143 mL urine sample?

|  |  |  |
| --- | --- | --- |
|   | a.  | 154 g |
|   | b.  | 132 g |
|   | c.  | 143 g |
|   | d.  | 0.00699 g |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 41. What temperature on the Celsius is the same as normal body temperature 98.6°F?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | 34.3°C | b.  | 37.0°C |
|   | c.  | 119.9°C | d.  | none of these |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42. At what temperature do the temperatures on the Celsius and Kelvin scales have the same numerical value?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | – 40 | b.  | 0 |
|   | c.  | 32 | d.  | There is no value where the two scales are the same. |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 43. The boiling point of liquid nitrogen is 77 K. What is this temperature on the Celsius scale?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | 350°C | b.  | 171°C |
|   | c.  | 25°C | d.  | –196°C |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 44. If a patient weighs 203 pounds (lbs), how many kilograms (kg) does the patient weigh?

|  |  |  |
| --- | --- | --- |
|   | a.  | 203 kg |
|   | b.  | 92.1 kg |
|   | c.  | 448 kg |
|   | d.  |  kg |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 45. In the health sciences, learning and understanding how to accurately convert chemical quantities is of utmost importance, as it keeps your patients and your practice safe. At home medicines are sometimes dispensed by the teaspoon (tsp) or tablespoon (tbsp). If there are 3 tsp in 1 tbsp and 1 tbsp is equal to 15 mL, how many milliliters are 2.0 tsp?

|  |  |  |
| --- | --- | --- |
|   | a.  | 45 mL |
|   | b.  | 45 mL |
|   | c.  | 20 mL |
|   | d.  | 3.0 mL |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. Consider the image shown below.Which of the following is an appropriate unit to place on this measurement?

|  |  |  |
| --- | --- | --- |
|   | a.  | g |
|   | b.  | mL |
|   | c.  | mm |
|   | d.  | cm3 |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47. Consider the two images below. **A B**Which balance shows the more accurate measurement?

|  |  |  |
| --- | --- | --- |
|   | a.  | A |
|   | b.  | B |
|   | c.  | The accuracy cannot be determined. |

|  |  |
| --- | --- |
| *ANSWER:* | c |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 48. Consider the two images below showing the readout on two balances. **A B**Which balance should be able to produce more precise measurements?

|  |  |  |
| --- | --- | --- |
|   | a.  | A |
|   | b.  | B |
|   | c.  | The accuracy cannot be determined. |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. If the density of ethanol is 0.787 g/mL, what is the mass of 37.4 mL of this substance?

|  |  |  |
| --- | --- | --- |
|   | a.  | 47.5 g |
|   | b.  | 29.4 g |
|   | c.  | 37.4 g |
|   | d.  | 0.0210 g |

|  |  |
| --- | --- |
| *ANSWER:* | b |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 50. The thermostat on an incubator reads 65°C. What is this temperature on the Kelvin scale?

|  |  |  |
| --- | --- | --- |
|   | a.  | 338 K |
|   | b.  | 149 K |
|   | c.  | –208 K |
|   | d.  | 65 K |

|  |  |
| --- | --- |
| *ANSWER:* | a |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 51. How many signficant figures are in the the measurement given below?220.10 mm

|  |  |  |
| --- | --- | --- |
|   | a.  | 2 |
|   | b.  | 3 |
|   | c.  | 4 |
|   | d.  | 5 |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 52. How many millimeters are equivalent to 40.5 km?

|  |  |  |
| --- | --- | --- |
|   | a.  |  mm |
|   | b.  |  mm |
|   | c.  |  mm |
|   | d.  |  mm |

|  |  |
| --- | --- |
| *ANSWER:* | d |

 |

|  |
| --- |
| The following questions refer to the plastic box shown below.Fill in the blanks in the questions from the following list. All units in the list will not be used and a unit maybe used more than once.dmLμLg/mLkgμmkm |

|  |  |  |
| --- | --- | --- |
| 53. If a measurement were made of the quantity represented by X in the figure, an appropriate unit to use would be\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if X = 18 in.

|  |  |
| --- | --- |
| *ANSWER:* | dm |

 |

|  |  |  |
| --- | --- | --- |
| 54. If the box were placed on a balance, a unit that might appear on the balance read-out would be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | kg |

 |

|  |  |  |
| --- | --- | --- |
| 55. The box is filled with water to the very top from a graduated cylinder. A unit that could be used to measure this quantity would be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | L |

 |

|  |  |  |
| --- | --- | --- |
| 56. Fill in the first blank with the appropriate number (1, 2, 3 etc.) and the second blank with the direction (right or left).In order to convert from milliliters to liters, the decimal is moved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ places to the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | 3, leftthree, left |

 |

|  |  |  |
| --- | --- | --- |
| 57. Fill in the first blank with the appropriate number (1, 2, 3, etc.) and the second blank with the direction (right or left).In order to convert from kilogram to milligrams, the decimal is moved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ places to the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | 6, rightsix, right |

 |

|  |  |  |
| --- | --- | --- |
| 58. Fill in the blanks with top or bottom as appropriate.In order to convert from kilograms to grams, the conversion factor should have 1 kg on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and 1000 g on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | bottom, top |

 |

|  |  |  |
| --- | --- | --- |
| 59. Compare the following two metric rulers. Fill in the blanks, respectively, with the identity of the ruler (A or B) and the terms more or less as appropriate.A measurement made with ruler\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_would be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_accurate.

|  |  |
| --- | --- |
| *ANSWER:* | A, moreB, less |

 |

|  |  |  |
| --- | --- | --- |
| 60. Based on the ruler represented in the picture. Use the appropriate integer (0, 1, 2, 3, etc.) in the blank to answer the question.The length of the side of the triangle should be recorded to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_decimal places.

|  |  |
| --- | --- |
| *ANSWER:* | 2two |

 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 61. Fill in the blanks, respectively, with a letter (A or B) to represent the balance and more or less to describe the precision.The density of a metal block was determined based on mass measurements using two different balances. The results are shown below.

|  |  |
| --- | --- |
| Density (g/mL) Balance A | Density (g/mL)Balance B |
| 9.76 | 9.89 |
| 9.59 | 9.78 |
| 9.89 | 9.99 |

The density determined using balance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_precise.

|  |  |
| --- | --- |
| *ANSWER:* | A, lessB, more |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 62. Fill in the blanks, respectively, with a letter (A or B) to represent the balance and more or less to describe the precision.Two students measured the density of a metal block was determined based on mass measurements using the same balance. The results are shown below.

|  |  |
| --- | --- |
| Density (g/mL) Student A | Density (g/mL) Student B |
| 21.7 | 21.0 |
| 21.6 | 21.3 |
| 21.9 | 21.5 |
| 22.0 | 21.8 |

If the metal block is gold (density = 21.45 g/mL), student \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_’s data is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_accurate.

|  |  |
| --- | --- |
| *ANSWER:* | B, moreA, less |

 |

|  |  |  |
| --- | --- | --- |
| 63. Enter the number (0, 1, 2, 3, etc.) in the blank provided.Consider the measurement shown below.780 mgThe first uncertain digit is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | 8eight |

 |

|  |  |  |
| --- | --- | --- |
| 64. Enter the number (0, 1 ,2, 3, etc.) in the blank provided.Consider the measurement shown below.23.5410 gThe first uncertain digit is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | 0zero |

 |

|  |  |  |
| --- | --- | --- |
| 65. Fill in the blank with the appropriate number (0, 1 ,2 ,3 etc.).Consider the following calculation:143.321 g17.89 g+ 100.1 g261.311 gThe answer should be round to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_decimal places.

|  |  |
| --- | --- |
| *ANSWER:* | 1one |

 |

|  |  |  |
| --- | --- | --- |
| 66. Fill in the blank with the appropriate number (0, 1, 2, 3 etc.).The following calculation was carried out to determine the volume of a rectangular solid.15.55 cm × 12.0 cm × 0.557 cm = 105.80233350 cm3The answer should be round to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_significant figures..

|  |  |
| --- | --- |
| *ANSWER:* | 3three |

 |

|  |  |  |
| --- | --- | --- |
| 67. Fill in the blank with the appropriate number (0, 1, 2, 3 etc.).The thermometer shown in the image is laying on a counter top and indicates room temperature.This temperature contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_significant figures..

|  |  |
| --- | --- |
| *ANSWER:* | 3three |

 |

|  |  |  |
| --- | --- | --- |
| 68. Fill in the blanks, respectively, with higher or lower and adequate or inadequate.A drop of a potential donor’s blood is placed in water and floats on the surface. This indicates that specific gravity of the blood is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_than water and that the iron concentration is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | lower, inadequate |

 |

|  |  |  |
| --- | --- | --- |
| 69. Fill in the blank with the appropriate term from the following: distance, volume, mass.Kilogram is a unit of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | mass |

 |

|  |  |  |
| --- | --- | --- |
| 70. Write the complete name of the metric unit below in the blank.mm: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| *ANSWER:* | millimeter |

 |

|  |  |  |
| --- | --- | --- |
| 71. Consider the metric railraod shown below. Fill in the blank with 10, 100, 1000, 10000, etc. as appropriate.To move between three stops corresponds to increasing or decreasing the unit by a factor of \_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| *ANSWER:* | 1000 |

 |

|  |  |  |
| --- | --- | --- |
| 72. Digoxin is a purified cardiac glycoside, which is a commonly prescribed drug given to a patient experiencing a cardiac disorder, such as atrial fibrillation or atrial flutter.Digoxin 0.125 mg tablets are available. The order is for Digoxin 0.25 mg poq am (by mouth every morning). How many tablets will you give?

|  |  |
| --- | --- |
| *ANSWER:* | 2 tablets (tabs) |

 |

|  |  |  |
| --- | --- | --- |
| 73. In an ampule, Sublimaze 2 mL containing 50 mcg/mL is available. The order is to administer Sublimaze 0.05 mg intravenously (IV). (Note: mcg is another abbreviation for μg.)a. How many mcg will you be giving?b. How many mL will you be giving?

|  |  |
| --- | --- |
| *ANSWER:* | a: 50 mcgb: 1 mL |

 |

|  |  |  |
| --- | --- | --- |
| 74. The order reads ‘haloperidol (generic name) 1 mg IV x1 now’. Haloperidol comes supplied in an ampule containing 10 mg/1 mL. How many mL’s will you administer? Show your work.

|  |  |
| --- | --- |
| *ANSWER:* | 0.1 mL = 1 mg |

 |

|  |  |  |
| --- | --- | --- |
| 75. An angiotensin converting enzyme (ACE) inhibitor, from the dicarboxylate-containing agent group, Lisinopril, is ordered as an oral anti-hypertensive (blood pressure lowering) medication. The order reads, Lisinopril 50 mg po (by mouth) qd (each day). The pharmacy supplied Lisinopril 20 mg tablets. How many tablets would be needed each day?

|  |  |
| --- | --- |
| *ANSWER:* | 2 ½ or 2.5 tablets |

 |

|  |  |  |
| --- | --- | --- |
| 76. A patient arrives in the emergency department with a highly elevated blood pressure of 210/100 mm Hg. A calcium channel blocker and potent vasodilator is ordered. The entry of calcium into the cell causes the cell to contract, therefore a calcium channel blocker blocks the entry of calcium into the cell. This action causes decreased contraction, which in turn causes the vessels to relax and vasodilate, which in turn causes decreased blood pressure. The order reads diltiazem 15 mg IV stat. Diltiazem is supplied in 20 mg/2 mL vials. How many mL’s would be administered?

|  |  |
| --- | --- |
| *ANSWER:* | 1.5 mL |

 |

|  |  |  |
| --- | --- | --- |
| 77. A patient is experiencing pain and you want to administer pain medication. The order reads Morphine 2 mg IV q (every) 4-6 hrs (hours) PRN (as needed) for pain. The pharmacy has supplied Morphine 10 mg/mL vials. How many mL’s are to be administered to your patient?

|  |  |
| --- | --- |
| *ANSWER:* | 0.2 mL |

 |