Science English Final [50 pts]

Question 0 **Make sure your name is on the top of your test.**

Math Section [20 pts]

Write these equations using numbers and symbols. DO NOT SOLVE THEM **[3 points]**

 Example: *three plus twenty-three minus thirteen*   ***Answer****: 3+23-13*

A. fifteen divided by five   _____

B. one-half takeaway seventy-two squared _____

C. negative four times the fifth root of two _____

Write the numbers using English or write the number from the English words. **[2 points]**

 Example: *252*   ***Answer:*** *two hundred and fifty two.*

 Example*: forty three*   ***Answer:*** *43*

984,603   _____

          _____

6,000,342   _____

          _____

Four hundred twenty eight million, three hundred forty two thousand, eight hundred and twenty three   _____

Ninety nine million and sixty seven _____

Question 3

Write the numbers in scientific notation or normal form **[2 points]**

Scientific Notation	Normal Form
Example 4.203×10^3	***Answer*** 4,203
7.862×10^5	
	37,600,000
4.3×10^2	
	2,000,000,000

Question 4

Draw a line from the word to its correct definition. **[2 points]**

mean   most common measure of an average

median   difference between the largest and
                                        smallest value

mode   middle value

range   occurs the most often

Over a period of 9 days, William eats nothing but shabu shabu. Below is a table for how many kilograms of shabu shabu he ate each day. **[5 points]**

day	1	2	3	4	5	6	7	8	9
kg of shabu shabu	4	15	4	8	10	10	4	25	1

a. Find the mean, median, mode, and range of the data. Use the space below to do your work. DON'T FORGET THE UNITS!!!!!!

Mean _____   Median _____   Mode _____   Range _____

b. Circle the correct answer. **[1 point]**

Is William eating too much shabu shabu?
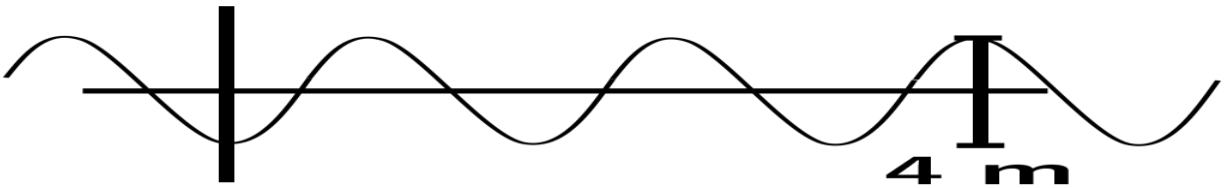
A. No   *B. No*   *C. No*   *D. No*

Light has a frequency of $150{,}000 \ \frac{1}{\text{sec}}$. What is its wavelength? **[2 points]**

$$\left(c = 300{,}000 \ \frac{\text{km}}{\text{sec}}\right)$$

a. The distance from the top to the bottom of a wave is 4 meters. What is the wave`s amplitude? **[1 point]**

Amplitude: _____

b. The wavelength of this wave is four times the amplitude. It has a frequency of $1.1 \times 10^4 \ \frac{1}{\text{sec}}$. How fast is the wave going? **[2 points]**

[extra space for work]

(or, if you finish the test early, you can draw a picture of your own galaxy!)

Astronomy Section [30 pts]

Question 1

Put the following in order from smallest to largest. **[2 points]**

A. Hercules-Corona Borealis Great Wall (supercluster)
B. ants
C. Sol (the sun)
D. the Rigel star system
E. Tadpole Galaxy

Smallest   _____   _____   _____   _____   _____   Largest

Question 2

a.   Is a light year a distance or a time? Circle one. **[0.5 points]**

                    time   *distance*

b.   In a complete sentence, write the definition of a light year. **[1 point]**

_____

_____

_____

Question 3

a. List 2 examples of places that are BAD for telescopes. **[1 point]**
1._____
2._____

b. List 2 examples of places _on Earth_ that are GOOD for telescopes. **[1 point]**
1._____
2._____

c. Where is the best place to put a telescope? _____ **[1 point]**

d. Is Hyogo a good place to build a telescope? Why or why not? **[2 points]**

_____

_____

_____

_____

Question 4

a. What do scientists call the beginning of the universe? **[1 point]**

_____

b. Circle the correct answer. **[0.5 points]**
At the beginning of the universe, the universe was

   cold, dense, and tiny.   _large, hot, and light._   _tiny, hot, and dense._

c. Circle the answer below. **[0.5 points]**
How long ago was the beginning of the universe?

 A. yesterday   B. about 100 years ago   C. about 300 million years ago
 D. about 1 billion years ago   E. about 10 billion year ago   F. 1 googol years ago

Question 5

a. Circle the correct answer. **[0.5 points]**

Parallax and brightness are both methods used to measure the _____ other stars.

distance to   *color of*   *speed of*

b. When is the brightness method a good method to use? **[1 points]**

_____

_____

_____

c. Below are several types of stars. Different types of stars have a different number of points. Circle all the stars below that scientists can use the brightness method on. **[1 point]**
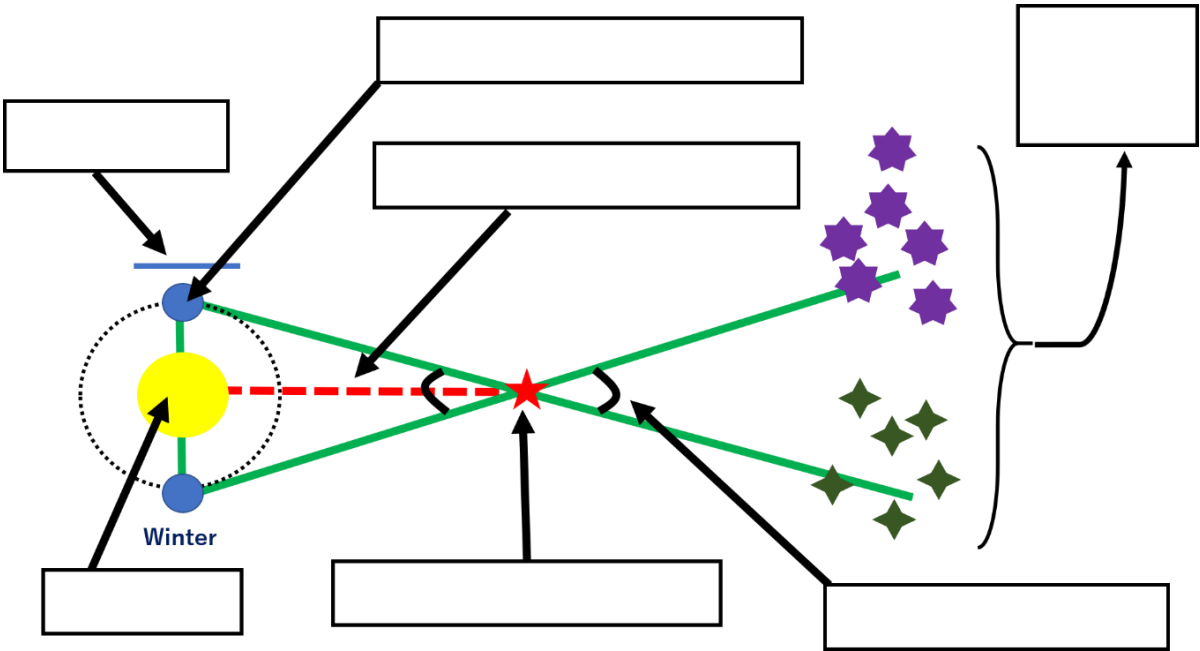
☆ ✷ ✡ ☆ ★ ✦ ✧ ★ ✺

a. Put the 7 words or phrases in their correct boxes in the picture. **[3.5 points]**

Words: 1. ANGLE OF CHANGE   2. DIFFERENT BACKGROUNDS
        3. SUN   4. EARTH
        5. SUMMER   6. TARGET STAR
        7. DISTANCE WE WANT TO CALCULATE

Winter

b. In two to three sentences, please explain the idea of parallax. **[2 points]**

_____

_____

_____

_____

_____

Question 7 Use the words to fill in the spaces in the paragraph below. **[10 points]**

● supercluster	● A comet	● stars	● space	● nebulae
● Universe	● An asteroid	● heat	● light	● empty
● matter	● gravitational	● galaxies	● cold	● atoms
● Andromeda	● aliens	● telescopes	● temperature	● planets
● energy	● ice	● Milky Way	● dust	● nuclear fusion

The _____ is defined as all existing _____ and _____.

Most of it is _____ and cold. We study the Universe by using

_____ to look at the _____ that comes to Earth from

space. Light is defined as _____ that we can see. With telescopes, we can

observe other stars inside the _____, our home galaxy, and we can

also look at other _____ as well. For example, scientists pointed their

telescopes at the _____ Galaxy and learned about how our closest

neighbor galaxy will crash into us in 5 billion years. Scientists define a galaxy as a system

of millions and billions of _____, together with gas and _____.

Galaxies are held together with _____ attraction. Inside galaxies, there

are stars and _____, the latter being a collection of stars and dust that is like a

cloud. Inside every star, the _____ in the center are packed so tightly that their

nuclei are joined together, fusing into heavier elements. This is called

_____. Your body is made of heavier elements so you are made of

stardust! Around each star are planets, comets, and asteroids. _____ is a

small, rocky body that orbits the sun. _____ is a large ball of _____

and dust. We are lucky to live in the solar system because it has many planets that we can

study and learn from. I want to know if there are other _____ living in space.

What do you want to know?

Question 8 Circle the correct answers **[1.5 points]**

a. There are two big theories about the end of the Universe. One is called the Big Crunch. The name of the other, more popular theory is called

The Big Bang   *The Sad Cookie*   *Heat Death*   *Bye Bye Atom*s

b. Both of these theories come from the fact that the Universe is

getting smaller   *expanding*   *staying the same size*

c. If the second theory is correct, the Universe will end

next Wednesday   *many many many many many many years from now*

Question 9

What was your favorite and least favorite part about this class. Please answer in complete sentences. **[1 bonus point]**

_____

_____

_____

END OF TEST. YAY!