**Honors Homework 2.1 Name:**

**You MUST show your work to receive full credit!**

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| Convert 1000KL per day into gallons per hour. (3.79 L = 1 gal)  | The perimeter of a rectangle is $24x-5$ . The length is $3x-6$. Find the width | Provide an example of when the product of two irrational numbers is rational. |
| Simplify: $$3x\left(-4x^{3}-10x^{2}-5x\right)+x^{3}$$ | A rectangle has a length of x2 +1 and a width of 2x+7. What is the **area** of the rectangle?  | Which one has a greater rate of change? 1. $y=2(5)^{x}$
2. In the children’s book, The Magic Pot, every time you put one object into the pot, two of the same objects come out. Imagine that you have 5 magic pots.
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| Determine if the sequence is arithmetic, geometric or neither. Then list out the next 4 terms.3, 5, 8, 12… | Determine if the sequence is arithmetic, geometric or neither. List out the next 4 terms and create the explicit equation.4, -20, 100, -500… | Given the 7th and 11th term of an arithmetic sequence. Create the explicit formula. A(7)= $\frac{14}{3}$ a(11)= $\frac{10}{3}$Explicit:  |
| Given that the 10th term of a sequence is 22 and the common difference is 6, find the 5th term. Create the explicit equation that goes with this.  | Find the rate of change (slope) for the table below.  | Given the explicit formula below, write the recursive. Then list out the first 3 termsa (n)= -12 + 4nRecursive: |
| Create a graph that matches an arithmetic sequence and a graph that matches a geometric sequence. Be sure to label them.   | Determine if the sequence is arithmetic, geometric or neither. List out the next 4 terms. Then create the recursive equation. -64, -47, -30, -13… | Write the explicit formula for the sequence below and then find the 70th term. -3, -7, -11Explicit:A(70)=  |
| State which one has a greater rate of change: 1. A sunflower grows 2 inches everyday
2. An amaryllis that grows 18 inches in a week
 | Write explicit formula and then find which term will have a value of 546, 9, 12, 15ExplicitA(\_\_\_)= 54 | Given the explicit formula below write the recursive. List out the first 5 terms. $$a\_{n}=-6(2)^{n}$$ |
| In a geometric sequence, a(15)= 2,560 and r=2. Find a(1). Make the explicit formula.  | Best Buy Shoes had a back to school special. The total bill for six pairs of shoes came to $69.24 (before tax). How much did the average price of shoes cost?  | Solve: $ \frac{1}{4}x=2$  |
| Tell if the following are discrete or continuous, linear or exponential. * For every hour that passes the amount of bacteria doubles.
* The water flowing down the Mississippi River at a rate of 4 ml/sec.
 | In a geometric sequence, a(6)=36 and a(12)= 2304. Find the constant ratio then write the recursive formula | Solve the following: 2x – 6 = -12  |
| Given the following two terms of an arithmetic sequence, write the explicit formula. A(5) = 45 a(23)= -9Explicit: | In an arithmetic sequence the 10th term is 450 and the common difference is 5. Find the 51st term.  | Write the explicit formula for a geometric sequence where the second term is 10,000 and the 5th term is 80. |
| Tell if the following is discrete or continuous, linear or exponential: * To meet the demands placed on them the brick layers have started to increase the number of bricks they lay by 5% each day.
* The number of students who are late on a bus increases by 4.
 | Explain why the following table has more than one answer for its missing terms. Then state what those two possible answers are for each term.

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| X | 1 | 2 | 3 | 4 | 5 |
| y | -10 |  | -40 |  | -160 |

 | What is one main difference between discrete data vs. continuous data?  |