

Name: _____ Date: _____

Comparing Sequences Homework

Mario and Luigi both want you to come and drive Go-Karts for their team. They will pay you in gold coins. Each one makes an offer:

Mario: I will give you 3 gold coins on the first day. Then, every day after that, I will pay you 3 times as much as I paid you the day before.

Luigi: I will give you 3 gold coins on the first day. Then, every day after that, I will pay you 20 more coins than I paid you the day before.

Who would you rather work for? Use the table below to help you decide.

Mario's Deal	Daily Wage	Luigi's Deal	Daily Wage
Monday		Monday	
Tuesday		Tuesday	
Wednesday		Wednesday	
Thursday		Thursday	
Friday		Friday	
Total Earnings		Total Earnings	

1) Whom would you rather work for? _____

Why? _____

2) Does the deal represent an arithmetic or geometric sequence? Explain why.

Mario _____

Luigi _____

3) Why does Mario's deal eventually become better than Luigi's deal?

4) Write an explicit function to represent each sequence.

Mario's Deal	Luigi's Deal

1. Consider the following:

- **Option 1:** You can be paid \$20 an hour for 20 hours of work.
- **Option 2:** You can get \$1 the first hour, \$2 the second hour, \$4 the third hour, and \$8 the fourth hour. Your hourly rate would continue to double every hour. You are working 20 hours.

a. Write an explicit formula for each option.

b. Which option would you choose, and why?

c. If you only worked 10 hours would your answer be the same? Why?

2. The yearbook staff is unpacking a box of school yearbooks. The sequence 281, 270, 259, 248,... represents the total number of ounces that the box weighs as each yearbook is taken out.

a. What is the weight of each yearbook?

b. After 20 yearbooks were unpacked, how much did the box weigh?

c. If the full box of yearbooks weighs 292 ounces, how many yearbooks were in the box?

3. You are trying to decide whether Netflix or HuluPlus is a better deal. Write a sequence for each situation. Compare the y-intercept and rate of change for each function. Based on this information, which function would you choose?

Netflix :

For joining it costs \$8.98 then it is an additional \$0.99 for each dvd you rent.

n	0	1	2	3
F(n)				

F(n) = _____

y-int: _____

Rate of Change: _____

HuluPlus:

dvds (n)	Total Cost (H(n))
1	10.48
2	10.97
3	11.46
4	11.95

H(n) = _____

y-int: _____

Rate of Change: _____

Based on the number of dvds you watch, which company would you go with?
