Comparing Functions Practice
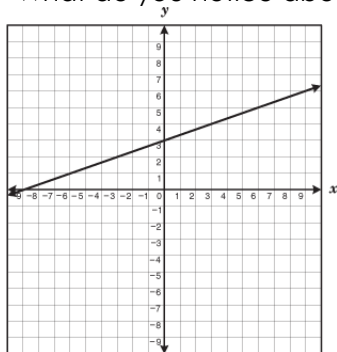
Name: _____ Date: _____

1. The functions f(x) and g(x) are described below. Compare the **rate of change** and **intercepts** of each. What do you notice about the two functions?

x	g(x)
-3	-4
0	-3
3	-2
6	-1

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2. The gym offers 3 membership plans.
   Pay As You Go: $6 each time you work out
   Regular Deal: $50 per month plus $2 each time you work out
   Unlimited Deal: $100 per month for unlimited use.

   What does the y-intercept of each function represent?

   Pay as you go is the cheapest plan until what number of visits is reached?

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3. Supply is modeled by the linear function f(x) = 0.3x + 100, where f(x) represents the price per tablet in dollars and x represents the number of tablets. Demand is modeled in the table below, where g(x) represents the price per tablet in dollars and x represents the number of tablets.

x	g(x)
100	490
300	370
500	250
600	190

Find the rate of change of each function. Which of the two lines is the steepest?

Find the equation for g(x), and find the intersection of the two lines. What does this point represent?

What happens if the supply exceeds the demand?

4. Compare the y-intercept and rate of change for each function. Based on this information, which function would you choose?Why?

Function A: A rental store charges $40 to rent a steam cleaner and $4 for each additional hour.

Function B:

Hours (x)	Total cost (g(x))
3	46
4	53
5	60
6	67

5. Ryan has invested $50,000 in the bank at 1.5% simple interest. The function to represent his money in the bank is $R(x) = 50,000(1.015)^x$.

Jamie has invested $20,000 in the bank at 3% simple interest. The function to represent his money in the bank is $J(x) = 20,000(1.03)^x$.

Compare the rate of change and y-intercepts for the first 20 years in the bank.

Ryan and Jamie are both 50 years old. Do you think Jamie's savings will ever catch Ryan if neither one of them touches the money that is in their accounts?

6. Compare the rate of chance and y-intercepts of each exponential function over the interval [0, 4].

Function A: The value of a car in dollars, f(x), depreciates after each year, x. The following table shows the value of a car for each of the first 4 years after it was purchased.

x	f(x)
0	22,450
1	19,307
2	16,604.02
3	14,279.46
4	12,280.33

Function B: The value of a second car is modeled by the equation g(x) = 19,375(0.84)ˣ, where g(x) represents the value of the car x years after the date it was purchased.

Find the common ratio for both functions. Which one is smaller? How does it compare to the rate of change for that function?