

LESSON 6.5 Assignment

Name _____ Date _____

The Power of Interest (It's a Curious Thing)**Geometric Series Applications**

1. Khaled purchases a used car. To pay for the car, he takes out a loan for \$4000 from a local bank. His loan requires a minimum monthly payment of 5%. For each monthly payment, 75% of the minimum payment goes towards interest and the remaining portion of the minimum payment goes towards the principal. The table shows his monthly payment details for the first 12 months of minimum payments.

Number of Months (n)	Balance Before Monthly Payment (dollars)	Minimum Monthly Payment (dollars)	Amount Paid Toward Interest (dollars)	Amount Paid Toward Principal (dollars)	Balance After Monthly Payment (dollars)
1	4000.00	200.00	150.00	50.00	3950.00
2	3950.00	197.50	148.13	49.38	3900.63
3	3900.63	195.03	146.27	48.76	3851.87
4	3851.87	192.59	144.45	48.15	3803.72
5	3803.72	190.19	142.64	47.55	3756.17
6	3756.17	187.81	140.86	46.95	3709.22
7	3709.22	185.46	139.10	46.37	3662.85
8	3662.85	183.14	137.36	45.79	3617.07
9	3617.07	180.85	135.64	45.21	3571.86
10	3571.86	178.59	133.94	44.65	3527.21
11	3527.21	176.36	132.27	44.09	3483.12
12	3483.12	174.16	130.62	43.54	3439.58
n					

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- a. Consider the table and the answers to each part to complete the n -row of the table.

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- b. It would be helpful if Khaled knew how much he had paid in both interest and principal over a certain amount of time instead of on any given month.
- Calculate the amount paid toward interest in the first 12 months.

- Calculate the amount paid toward principal in the first 12 months.

- c. Write a formula for the geometric series that represents:
- the total monthly payment.

- the total payment towards interest over time.

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- the total payment towards principal over time.

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d. Use the formulas you created in part (c) to complete the table.

	Total Amount Paid Toward Interest (dollars)	Total Amount Paid Toward Principal (dollars)
1.5 years		
2 years		

e. When will the minimum monthly payment become \$50.00?

f. What is the balance of Khaled's bank loan, when the minimum payment becomes \$50.00?