

5.1 - LINEAR VS. EXPONENTIAL FUNCTIONS

Describe each type of account as simple interest or compound interest based on the scenario given. Explain your reasoning.

- Andrew deposits \$300 into an account that earns 2% interest each year. After the first year, Andrew has \$306 in the account. After the second year, Andrew has \$312 in the account.
- Marilyn deposits \$600 in an account that earns 1.5% interest each year. After the first year, Marilyn has \$609 in the account. After the second year, Marilyn has \$618.14 in the account.

Write a function that represents the balance in the account as a function of time, t , **and** determine the account balance after 10 years. Refer to the 5.1 examples “Writing & Solving Simple Interest & Compound Interest Equations” in the Chapter 5 Summary.

- Nami deposits \$500 into a simple interest account. The interest rate for the account is 3%.
- Leon deposits \$5000 into a compound interest account. The interest rate for the account is 6%.
- Emilio deposits \$250 into a simple interest account. The interest rate for the account is 2.5%.
- Lea deposits \$450 into a compound interest account. The interest rate for the account is 5.5%.

Use the simple and compound interest formula to complete each table. Round to the nearest cent. Refer to the 5.1 example “Comparing Simple & Compound Interest” in the Chapter 5 Summary.

- Javier has \$2300 to deposit into an account. The interest rate available for the account is 3.75%.

TIME (YEARS)	SIMPLE INTEREST BALANCE	COMPOUND INTEREST BALANCE
EXPRESSION: t	EXPRESSION:	EXPRESSION:
0		
2		
5		
15		
20		

Determine whether the sequence is arithmetic or geometric. Write its explicit formula and use it to determine the 10th term. Write its recursive formula and use it to find the next 3 terms. Lastly, identify the sequence as a linear or exponential function. *Refer to all Chapter 4 examples” in the Chapter 4 Summary.*

	8) 7, -21, 63, ...	9) 20, 11, 2, ...	10) 243, 81, 27, ...
SEQUENCE TYPE			
EXPLICIT FORMULA			
10 TH TERM			
RECURSIVE FORMULA			
NEXT 3 TERMS			
LINEAR OR EXPONENTIAL			

Determine the x -intercept and the y -intercept of each equation. Then convert each equation from standard form to slope-intercept form and identify the slope. *Refer to examples 3.2 & 3.3 in the Chapter 3 Summary.*

	SLOPE-INTERCEPT FORM	x -INTERCEPT	y -INTERCEPT	SLOPE
11. $15x + 3y = 270$				
12. $12x - 4y = -480$				

Solve each system of equations using the linear combinations method. Write your solution as an ordered pair (x, y) . *Refer to the 6.2 example “Solving a System of Equations Using the Linear Combinations Method” in the Chapter 6 Summary.*

$$13. \begin{cases} 2x - 4y = 4 \\ -3x + 10y = 14 \end{cases}$$

$$14. \begin{cases} -2x + 7y = 13 \\ 4x - 6y = -2 \end{cases}$$