

**LESSON 5.3** Assignment

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Name \_\_\_\_\_ Date \_\_\_\_\_

**Let the Transformations Begin!**  
**Translations of Linear and Exponential Functions**

Bryon is raising money for a surfing trip by selling coupon books. He earns \$10 toward his trip for every book he sells.

1. Analyze the problem situation.
  - a. Complete the table to determine the amount of money Bryon will earn after selling  $x$  coupon books.

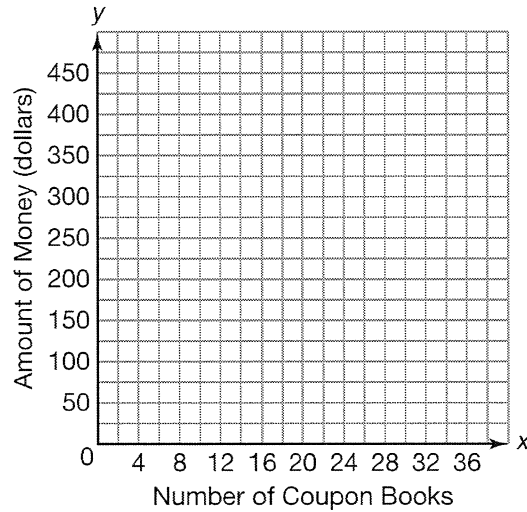
Number of Coupon Books	Amount of Money
1	
5	
12	
25	
$x$	

- b. Before Bryon is able to begin selling the coupon books, the company selling the books goes under new management. In order to try to make more profit, management informs Bryon that they will give him \$10 for every book he sells over 5 books. Complete the table to determine how much money Bryon will earn after selling  $x$  coupon books.

Number of Coupon Books	Amount of Money
6	
10	
17	
30	



- c. Graph both situations. Label the graphs.



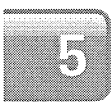
- d. Compare the graphs. Then write the function for the amount of money earned under new management  $g(x)$  in terms of the basic function  $f(x)$ .

2. Bryon was able to raise \$450 selling coupon books. He decided to put his money into a savings account that earns 3% annual compound interest.

- a. Write the function that represents the amount of money Bryon will have after  $x$  years. Use  $f(x)$  for the function.

- b. Complete the table to determine how much money Bryon will have after  $x$  years.

Number of Years	Amount of Money
0	
5	
8	
15	

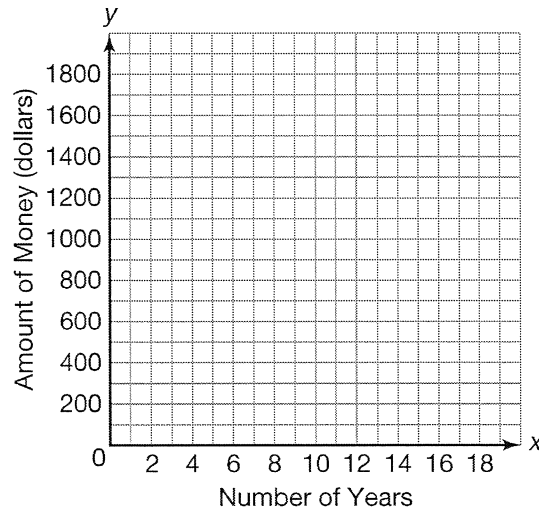


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- c. Bryon's father is extremely proud of Byron's decision to put the money into a savings account. He tells him that he will give him an additional \$300 at the time he takes the money out of savings. Complete the table for the amount of money Bryon will have after saving the money for  $x$  years.

Number of Years	Amount of Money
0	
5	
8	
15	

- d. Graph both situations. Label the graphs.



- e. Compare the graphs. Then, write the function for the amount of money earned after Bryon's father contributes  $g(x)$  in terms of the basic function  $f(x)$ .