

Algebra 1
5.1 Simple and Compound Interest

Name _____ Period _____

Write the definitions.

Interest:

Simple Interest:

Compound Interest:

Vocabulary/Formulas:

$P =$

$r =$

$t =$

$A =$

Simple Interest formula for the amount owed:

Compound Interest formula for the amount owed:

Suppose that Nico deposits \$1000 into an account that earns 5% simple interest each year.
Suppose that Raul deposits \$1000 into an account that earns 5% compound interest each year.

Create your formula for each situation.

1. Use the simple and compound interest formulas from the situations for Nico's simple interest account and Raul's compound interest account to complete the table. Round the values to the nearest cent.

| Quantity | Time | Simple Interest Balance | Compound Interest Balance |
|------------|------|-------------------------|---------------------------|
| Units | | | |
| Expression | | | |
| | 0 | | |
| | 1 | | |
| | 2 | | |
| | 8 | | |
| | 100 | | |

Which of these interest formulas is arithmetic and which is geometric? Why?

2. Terrell is looking for some financial advice. He has the option to deposit \$1000 into the simple interest account just like Nico's account, or a compound interest account just like Raul's account. The compound interest account would cost him a one-time start-up fee of \$200. The simple interest account is free. Where would you tell Terrell to put his money and why?

3. Graph the simple interest and compound interest functions on desmos.com. Then, sketch and label the graphs on the given grid.

$f(t) = 1000 + 50t$
 $g(t) = 1000(1.05)^t$

X-Axis
 -5 ≤ x ≤ 40 Step: _____
 Y-Axis
 0 ≤ y ≤ 6000 Step: _____



What kind of functions are these? Linear? Absolute Value? Exponential? Quadratic?

Check for Students' Understanding

Suppose that your family deposited \$10,000 in an interest bearing account for your college fund that earns 4% simple interest each year and a friend's family deposited \$10,000 in an interest bearing account for their child's college fund that earns 4% compound interest each year.

Use the simple and compound interest formulas to complete the table and round the values in the table to the nearest cent.

| | Time | Simple Interest Balance | Compound Interest Balance |
|------------|------|-------------------------|---------------------------|
| Units | | | |
| Expression | | | |
| | 0 | | |
| | 1 | | |
| | 2 | | |
| | 3 | | |
| | 10 | | |

How much money will you and your friend have in the college funds when you each turn 18 years old?