Simple Interest Notes

* In this lesson, students will learn to solve problems involving simple interest. There are two ways that simple-interest can be calculated:
  + Proportion method
  + Equation/Formula method
* For example, take the following scenario: Calculate the amount of simple-interest on $600 deposited at an interest rate of 7% for two years.
  + Proportion Method:
  + Set up a proportion that represents two equivalent ratios:http://www.wcpss.net/isd/resources/ms/instructionalguides/images/ms-m-g7-ig52_clip_image002.gif.
    - Substitute the known values.

http://www.wcpss.net/isd/resources/ms/instructionalguides/images/ms-m-g7-ig52_clip_image004.gif , where I represents the amount of simple-interest.

* + Continue solving the proportion to find I.
    - Solve for I using cross products.
    - I = $42; however, the money was invested for 2 years.
    - Multiply $42 · 2 to achieve $84 as the amount of simple-interest.

* Equation/Formula Method:
  + When using the equation method, if three values of the simple-interest formula (I = prt) are known, then the fourth value can always be found by solving for the unknown quantity or variable.
  + Substitute the known values into the given formula, ensuring that the interest rate of 7% is converted into a decimal (0.07). Solve.

I = prt  
I = (600)(0.07)(2)  
I = $84

* + Once again, the simple-interest is calculated to be $84.
* Using the Simple Interest Extension found in Holt Course 1, allow students to work in the partners or groups with mini-white boards solving problems. Be sure to also model for your students how to find the other parts when missing the principal, rate, or time.
  + Tip #1: When working with the proportion method or the equation/formula method, remind students that time, t, in the simple interest formula must be expressed in years. So, if time is given in months, then time will need to be converted to years by setting up a ratio. For example, when given 3 months, use the ratio:http://www.wcpss.net/isd/resources/ms/instructionalguides/images/ms-m-g7-ig52_clip_image006.gif, which simplifies tohttp://www.wcpss.net/isd/resources/ms/instructionalguides/images/ms-m-g7-ig52_clip_image009.gif. This simplified ratio can now be divided to generate the decimal 0.25.
  + Tip #2: When using the equation method, if interest rates are expressed as percents, it’ll be necessary for students to convert the percent to a decimal prior to substituting it into the formula I = prt.

Other Examples:

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| A. You deposit $2,500 in an account that earns 4% simple interest. How long will it be before the total amount is $3,000?  (Hint-if you start with 2500 and need to end with 3000, how much more do you need? That’s your interest for this problem) | B. A deposit of $10,000 was made to an account the year you were born. After 12 years, the account is worth $16,000. What simple interest rate did the account earn?  (Hint-if the total after 12 years is 16,000 and it started at 10,000, how much interest was earned?) |
| C. Jared borrows $800 from the bank with a simple interest rate at 6% for 6 months. How much interest will Jared pay at the end of 2 years? | D. What is the ending balance for an account with $2,455 as the principal, 3% interest rate, and left in the account for 6 years? |

Answers: A: 5 years, B: 5.5%, C: $84 interest, D: $2896.90 balance