## $1324\hbox{-}BZBS14e\_Notes\hbox{-}3\hbox{-}1\hbox{-}simple\hbox{-}interest$

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## 3.1: Simple Interest

Simple interest is generally only used on short-term loans (1 year or less).

**Principal**: Amount of money on which interest is earned.

Interest: Cost to borrow money.

## Simple Interest:

$$I = Prt$$

where

Ex: 8% intract

P = principal

r = annual simple interest rate (written as a decimal)

t =time in years

The future value, A, (the amount of money after simple interest accrues) is given by

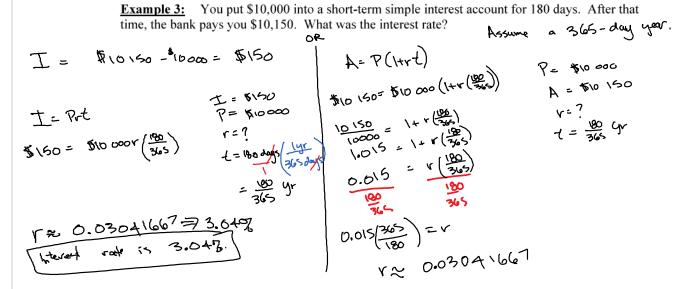
$$A = P + T$$

$$A = P + Prt$$

$$= P(1 + rt)$$

**Example 1:** Your car needs repairs, but you are short on cash. Uncle Albert has agreed to loan you \$500, but you have to pay it back with interest. How much will you owe Uncle Albert after 5 months at 9% simple interest?

**Example 2:** How much should you invest so that you will receive \$1000 after 10 months at 10% simple interest?



**Example 4:** You are due to receive a tax refund of \$1685. IRS guidelines state that you should receive your refund 21 days after electronically filing your tax return. Instead of waiting, you utilize a "rapid refund" tax service. In addition to the tax preparation fee, which starts at \$59 for the simplest tax return, you must also pay \$40 to receive your refund in a refund transfer account set up by the tax preparation service. This allows you to access your refund amount immediately, less deductions and fees. While this is technically a tax product rather than a loan, you can calculate the annual interest rate that corresponds to a loan that has the same length of time, principal, and payback amount. What is this equivalent interest rate?