

Simple Interest

$$I = Prt$$

$$\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$$

↑
Present Value

↑
in years

$$FV = P + I$$

Future
Value

$$FV = P + Prt$$

$$FV = P(1 + rt)$$

ex: What is the simple interest on a \$340,000 loan at 5.1% interest for 120 days?

↑
.051

$$I = Prt$$

$$I = 340000 \cdot .051 \cdot \frac{120}{365}$$

↑ time in yrs

$$340000 * .051 * 120 / 365 \text{ enter}$$

$$I = \$5700.82$$

At the end of 120 days we pay back \$345,700.82

ex: Find the future value of a \$8,950 loan at 9.5% paid back in 278 days.

$$FV = P(1 + rt)$$

$$= 8950 \left(1 + .095 \cdot \frac{278}{365} \right)$$

on calculator $8950(1 + .095 * 278/365)$ enter

$$FV = \$9,597.59$$

ex: $P = ?$

$$FV = 1900$$

$$t = 2 \text{ yrs, } 7 \text{ mos} = 2\frac{7}{12} = \frac{31}{12} \text{ yr.}$$

$$r = 5.75\%$$

$$FV = P(1 + rt)$$

$$1900 = P \left(1 + .0575 \cdot \frac{31}{12} \right)$$

$$1900 = P \cdot 1.148541667$$

$$P = \$1654.27$$

① $1 + .0575 * 31/12$ enter

② $1900 / \text{ANS}$ enter

ex: Average Daily Balance

Finance Charge

6/26 - 7/25

Previous Balance = \$7,036.40

Annual Rate = 18%

6/27 Payment \$500

7/4 Fireworks \$99

7/15 Dinner \$213.53

	<u>amt. she owes</u>	<u># of days</u>	
6/26	7036.40 <u>-500.00</u>	1	7036.40
6/27-7/3	6536.40 <u>+99</u>	7	= 45754.80
7/4 - 7/14	6635.40 <u>+213.53</u>	11	= 72989.40
7/15 - 7/25	6848.93	$\frac{11}{30}$	= $\frac{75338.23}{30}$
			<u>20118.8</u>

$$7036.40 + \underbrace{6536.40 + \dots + 6536.40}_{7 \text{ times}} + \underbrace{6635.40 + \dots + 6635.40}_{11 \text{ times}} + \underbrace{6848.93 + \dots + 6848.93}_{11 \text{ times}}$$

$$\text{Avg daily balance} = 20118.8 \div 30 = \$6,703.96$$

$$\begin{aligned} \text{Finance Charge} = \text{Interest} &= 6703.96 \cdot 0.18 \cdot \frac{30}{365} \\ &= \$99.18 \end{aligned}$$