

## Section 5.1 Simple Interest

$$I = Prt$$

interest = principal · rate · time in years  
                  ↑  
                  present value

$$FV = P + I$$

↑  
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?

$$I = Prt$$

$$P = 340000$$

$$r = .051$$

$$t = \frac{120}{365} \text{ yr}$$

$$I = 340000 \cdot .051 \cdot \frac{120}{365} = \$5,700.82$$

on calculator  $340000 * .051 * 120/365$  enter

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

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

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

$$P = 8950$$

$$r = .095$$

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

$$= \$9,597.59$$

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

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ex 24 p313       $P = ?$

$$5\frac{7}{8}\% = .05875 = r$$

$$FV = 1900$$

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

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

$$1900 = P \left( 1 + \underbrace{.05875 \cdot \frac{31}{12}}_{2.12+7} \right)$$

$$1900 = P(1.1518)$$

$$P = \$1649.63$$

$$\left\{ \begin{array}{l} 1 + .05875 * 31/12 \text{ enter} \\ 1900 \div \text{ANS enter} \end{array} \right.$$

ex 32 p313

$$r = 0.195$$

June 30    payment    100.00

July 2     gas            36.19

July 10    restaurant    53.00

	$\overset{x}{\text{amt. she owes}}$	$\overset{f}{\text{\# of days}}$	$\overset{f}{f}x$
June 26 - June 29	396.68 <small>-100</small>	4	1587.52
June 30 - July 1	296.68 <small>+36.19</small>	2	593.76
July 2 - July 9	333.07 <small>+53</small>	8	2664.56
July 10 - July 25	386.07	16	6177.12
		<u>30</u>	<u>11022.96</u>

$\Sigma f = 30$   
 $\Sigma fx = 11022.96$

$$\text{avg daily balance} = \frac{11022.96}{30} = 367.43$$

finance charge

$$I = Prt$$

$$I = 367.43 \times .195 \times \frac{30}{365}$$

$$I = \underline{\underline{\$5.89}}$$

p312-313

1-25 odd, 31, 35