Chapter Review

1. Allie is a carpenter. She is saving for new tools. She invested $1200, at 1.9%/yr simple interest, for 2 yr. How much will she have at the end of 2 yr to spend on tools?

e.g., $I = \$1200 \times 0.019/\text{yr} \times 2\ \text{yr}$

$= \$45.60$

$A = \$1200 + \$45.60$

$= \$1245.60$

Allie will have $1245.60 to spend on tools.

2. Carlos earned $19.83 in simple interest on his investment of $1280. The interest rate was 1.2%/yr. He wanted to calculate the number of days he invested for. Here are his calculations.

$\$19.83 = \$1280(0.012)(t)$

$\$19.83 = \$15.36(t)$

$\frac{\$19.83}{\$15.36} = t$ So $t = 1.291\ldots$ d

a) Where did Carlos make an error?

Carlos left the investment time of 1.291 in years. He should have converted the time to days.

b) For how many days did Carlos invest?

e.g., $t = 1.291\ldots$ yr $\times$ 365 d/yr, or 472 d

Carlos invested for 472 d.

3. Karim earned $93.26 in simple interest in 1 yr on a $2900 investment. What was the interest rate on Karim's investment? Round to one decimal place.

e.g., $I = Prt$

$\$93.26 = \$2900 \times r \times 1$

$\frac{\$93.26}{\$2900} = r$

$0.0321\ldots = r$ So $r = 0.0321\ldots \times 100\%$, or about 3.2%

The interest rate on Karim's investment was 3.2%/yr.

4. Ming is a realtor. She earned $6200 in commission from the sale of a property. Ming invested the commission in a 5 yr GIC that paid 2.7%/yr, compounded annually. How much will Ming have after 5 yr?

e.g., $A = \$6200.00(1 + 0.027)^5$

$= \$7083.434...$

Ming will have $7083.43.

5. Complete the chart.

Compounding	Principal (P)	Interest rate	Number of years	Number of compounding periods (n)	Compound interest formula	Amount (A)
semi-annually	$4000	3.1%/yr	3	6	$A = P(1 + i)^n$ $= \$4000\left(1 + \frac{0.031}{2}\right)^6$	$4 386.72
monthly	$9800	1.9%/yr	2	24	$A = P(1 + i)^n$ $= \$9800\left(1 + \frac{0.019}{12}\right)^{24}$	$10 179.26

6. Susie is a landscaper. She leases a truck for her business. She plans to buy out the lease in 6 yr. She has half the money now.

At what interest rate, compounded annually, does Susie need to invest now in order to double her money in 6 yr?

e.g., $6 \text{ yr} = \frac{72}{\text{annual interest rate (\%)}}$, or $\frac{72}{12}$

Susie will need to find an interest rate of 12%.

7. Gair will need $10 000 in 2 yr to upgrade his farm equipment. He is investing at a rate of 2.4%/yr, compounded quarterly. How much does Gair need to invest now to have $10 000 in 2 yr?

e.g., $\$10\,000 = P\left(1 + \frac{0.024}{4}\right)^{2\times 4}$

$\$10\,000 = P(1.0490...)$

$\frac{\$10\,000}{1.0490...} = P$

$\$9532.705... = P$ Gair needs to invest $9532.71 now.