Foundations 12 Name: Key

Simple and Compound Interest – Extra Practice Block: _____

1. A bank is offering a simple interest rate of 3.5% for a GIC with a 3 year term. Reid invests $1500 into the GIC. What is the future value at maturity?

$A = 1500 + 1500(0.035)(3)$

$\boxed{A = \$1657.50}$

2. At 5% simple interest, how long would it take $500 to grow to $575?

$575 = 500 + 500(0.05)t$

$75 = 25t$

$\boxed{t = 3 \text{ years}}$

3. Cal wants to buy a car and hopes to save $6400 in the next 5 years. How much should he invest now at 2.4% simple interest in order to reach his goal?

$6400 = P(1 + 0.024(5))$

$6400 = P(1.12)$

$\boxed{P = \$5714.29}$

4. The Canada Savings Bonds issued one year earned 8.25% interest compounded annually. They matured in 7 years. Determine the future value of a $500 bond.

$A = 500(1 + 0.0825)^7$

$\boxed{A = \$870.89}$

5. Elise put $2000 into an RRSP (Registered Retirement Savings Plan) earning 9.5% interest compounded semi-annually. Determine the future value after 7 years.

$A = 2000\left(1 + \frac{0.095}{2}\right)^{7 \times 2}$

$\boxed{A = \$3829.89}$

6. Pat puts $5000 into a short-term deposit. She obtains a 1 year term at 6% compounded monthly. What is the future value of her investment?

$A = 5000\left(1 + \frac{0.06}{12}\right)^{12}$

$\boxed{A = \$5308.39}$

7. How much would you have to invest today at 4.5% ~~interest~~ compounded annually in order to have $2850 available after 3 years?

$2850 = P(1 + 0.045)^3$

$\frac{2850}{(1 + 0.045)^3} = P$

$\boxed{P = \$2497.45}$

8. Anna wants to invest money to accumulate $8000 in 4 years when her son starts university. How much would she need to invest now at 6% compounded quarterly?

$$8000 = P\left(1+\frac{0.06}{4}\right)^{4\times 4}$$

$$P = \frac{8000}{(1+0.015)^{16}} = \boxed{\$6304.25}$$

9. A donor gave $75000 to a town council. The money was to be invested for 10 years, and the accumulated amount used to expand the public library. Each member of the council found a different investment option. Which investment option will return the most money to spend on the library, and how much will it be?

a) 8.5% simple interest

$$A = 75000(1+0.085(10)) = \boxed{\$138\,750}$$

b) 6.3% compounded annually

$$A = 75000(1+0.063)^{10} = \boxed{\$138\,163.69}$$

c) 6.25% compounded semi-annually

$$A = 75000\left(1+\frac{0.0625}{2}\right)^{20} = \boxed{\$138\,784.35}$$

d) 6.2% compounded quarterly

$$A = 75\,000\left(1+\frac{0.062}{4}\right)^{40} = \boxed{\$138758.11}$$

e) 6.1% compounded monthly

$$A = 75000\left(1+\frac{0.0615}{12}\right)^{120} = \boxed{\$138506.54}$$

f) 6% compounded daily

$$A = 75000\left(1+\frac{0.06}{365}\right)^{3650} = \boxed{\$138025.32}$$