

## Prerequisite Skills

### Proportional Thinking

- Depositing \$1800 in one year means depositing how much
  - per month?
  - per week?
  - per day?
- Earning \$3000 per month means earning how much
  - in 1 year?
  - in 5 years?
  - in 10 years?
  - in 30 years?

### Exponents and Exponential Functions

- Without using a calculator, determine whether each power will give a value greater than, less than, or equal to 1.
  - $0.99^2$
  - $0.15^{-8}$
  - $\left(\frac{4}{5}\right)^{-2}$
  - $\left(\frac{24}{73}\right)^3$
  - $1.00675^0$
  - $0.1^{-1}$
- Determine the value of each power in question 3. Round your answers to two decimal places.
- Consider the exponential functions  $f(x) = 0.4^x$  and  $g(x) = 4^x$ .
  - Make a table of values and sketch a graph of each function.
  - Which function,  $f(x)$  or  $g(x)$ , has a greater value when
    - $x = 10$ ?
    - $x = -10$ ?
    - $x = 0.1$ ?
    - $x = -0.1$ ?
- Consider the functions  $f(x) = 100 + 5x$  and  $g(x) = 100(1.05)^x$ .
  - Sketch a graph of each function.
  - For which values of  $x$  does  $f(x) = g(x)$ ?
  - Predict which function will have the greater value when  $x = -20$ . Justify your answer.
  - Use a graphing calculator to check your answers to part b) and part c).

### Simple and Compound Interest

- Determine the simple interest earned in each situation. Round your answers to two decimal places.
  - A \$5000 GIC earns 3.6% interest per year, for 5 years.
  - A \$1500 deposit into a savings account earns 1.25% interest per year, for 120 days.
  - An \$8000 term deposit earns 2.65% annual interest for 30 months.
  - A \$7500 investment earns 3.9% interest per year, for 15 months.
- Determine  $i$ , the interest rate per compounding period, and  $n$ , the number of compounding periods. Round your answers to six decimal places.
  - \$750 invested at 3% annual interest, compounded monthly for 4 years.
  - \$300 invested at 0.75% interest per year, compounded daily for 2 years.
  - \$4000 invested at 4.5% annual interest, compound weekly for 1 year.
  - \$1800 invested at 2.15% interest per year, compounded quarterly for 3 years.
- Use the compound interest formula to determine the future value for each part of question 8. Round your answers to two decimal places.
- Use the method of your choice to determine the present value of each amount. Round your answers to two decimal places.
  - \$1400 in 6 months at 2.4% per year, compounded monthly
  - \$21 000 in 2 years at 4.2% per year, compounded semi-annually