

1.2 Functions and Function Notation**BLM 1-3**

- Give an example of a mapping diagram for a relation that is a function and an example of a mapping diagram for a relation that is not a function.
- Write each function in mapping notation.
 - $f(x) = 3x^2 - 8$
 - $C(v) = 2v - 11$
 - $h(t) = -5t^2 + 2t + 3$
 - $p(r) = \frac{3r}{2r+1}$
- Complete a table of values for the relation $y = -\sqrt{x+1}$, and create a graph using the data.
 - Is this relation a function? Explain your reasoning.
- An investment of \$1000 grows according to the relation $A = 1000(1.04)^n$, where A is the value of the investment, in dollars, and n is the number of years that the investment grows.
 - Graph the relation using a table of values for the first 10 years of the investment.
 - Is the relation a function? Explain your reasoning.
- The velocity, v , in metres per second, of a dropped object after falling a vertical distance of h metres is given by the relation $v(h) = 4.4\sqrt{h}$.
 - State the domain and range of the relation.
 - Graph the relation for $h = 0$ m to $h = 100$ m, in 10-m increments.
 - Is the relation a function? Explain your answer.
- Rayanna tells her friend Jessie that a relation that is a function must pass a vertical line test and a horizontal line test. Is she correct? Explain why or why not and include examples.
- The amount, A , in dollars, that needs to be invested at an annual interest rate of i percent to have \$500 after 2 years can be found using the relation $A(i) = \frac{500}{(1+i)^2}$. Note that i must be expressed in decimal form.
 - Graph the relation for interest rates from 1% to 10%.
 - How much needs to be invested at 4.5% annual interest to give \$500 at the end of 2 years?
 - What does the rate of interest need to be if \$400 is the amount invested for the 2 years?
- A quadratic function machine generates the following three points for a quadratic function of the form $y = ax^2 + c$: $(0, -5)$, $(1, -2)$, and $(-2, 7)$.
 - Determine the values of a and c .
 - Give two other points that are on the function.
 - Is the point $(3, 20)$ on the function? Justify your answer.

