

Chapter 1 Review

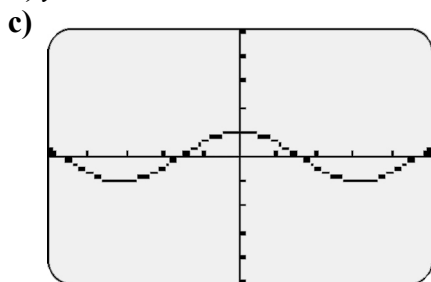
1.1 Identify Functions, pages 6–14

1. Is each relation a function? How do you know?

a)

x	y
-2	0
-1	0
0	1
1	1
2	2

b) $y = x^2 + 3$



2. Evaluate, given $f(x) = x^2 + 5x - 5$.

a) $f(2)$ b) $f(-3)$ c) $f\left(\frac{1}{2}\right)$

1.2 Domain and Range, pages 15–22

3. Describe in words the domain and range of $y = 3x + 1$. Explain your thinking.
4. A parabola opens upward and its vertex is located at $(-2, 5)$. Write the domain and range.

1.3 Analyse Quadratic Functions, pages 23–30

5. Does each relation represent a quadratic function? If not, explain why.
- a) $h(t) = 2(t + 2)^2 + 2$
- b) $4x + 3y = 21$

6. Identify the relation for this set of data as linear, quadratic, or neither. Calculate the first and second differences, if necessary.

x	y
-2	-7
-1	-1
0	1
1	-1
2	-7

1.4 to 1.6 Stretches of Functions, Translations of Functions, Sketch Graphs Using Transformations, pages 31–53

7. For each function, describe the graph in terms of transformations on the graph of $y = x^2$. Then, sketch the graph. Label the vertex, axis of symmetry, and two other points.

a) $f(x) = -x^2 - 3$

b) $g(x) = 3(x - 4)^2$

c) $h(x) = -2(x + 1)^2 - 4$

8. Determine the equation of a parabola with vertex at $(8, -2)$, congruent in shape to the graph of $y = 2x^2$, and with no x -intercepts.
9. On the moon, the approximate height of an object above the ground, h , in metres, t seconds after being dropped from a height of 40 m is given by the function $h(t) = -0.8t^2 + 40$.
- a) Graph the function.
- b) Find the height of the object 2 s after being dropped.
- c) How long will the object take to hit the ground?