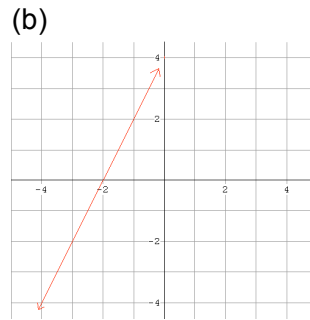
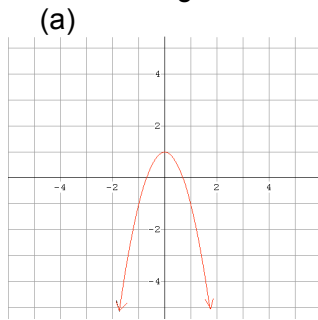


**CHAPTER 1: Introduction to Quadratic Functions**

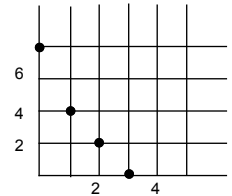
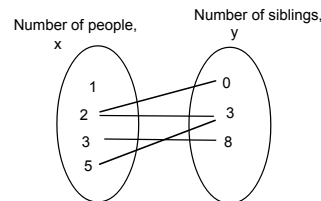
1. State the domain and range for the following functions.



2. Determine whether the following relations are functions. State the domain and range.

(a)  $f = \{(1, 2), (1, 3), (5, 3), (6, 2)\}$  (b)

(c)



3. If
- $f(x) = 3(x - 2)^2 + 1$
- , determine

(a)  $f(-1)$

(b)  $f(x + 1)$

4. A relation
- $g$
- is given by
- $g(x) = 3x^2 + 2x - 4$
- . Evaluate.

(a)  $g(-2)$

(b)  $g(m)$

(c)  $g(4a)$

5. In words, describe the transformations to the graph
- $f(x) = x^2$
- to get
- $g(x)$
- , if
- $g(x) = \frac{1}{2}(x + 4)^2 - 3$
- .

6. Graph each of the following
- and then state domain and range
- .

(a)  $y = \frac{1}{2}(x + 3)^2$

(b)  $g(x) = -3(x - 1)^2 + 2$

(c)  $y = -2$

7. Create a first- and second-difference table for the following data.

x	y
-1	1
0	2
1	-3
2	-14
3	-31

(a) What conclusion can be made from the first difference?

(b) What conclusion can be made from the second difference?

**EXTRA QUESTIONS – Chapter 1****p. 186 # 1 – 8.****CHAPTER 2: The Algebra of Quadratic Expressions**

1. Expand and simplify.

(a)  $3(x^2 - 2) - 4x(3x - 7)$

(b)  $-(a - 3)^2 + 3(5a + 2)^2$

2. Common factor each of the following polynomials.

(a)  $12a^3b^3 - 6a^4b^2 + 9a^5b^4$

(b)  $5x^2(x + y) - 20y^2(-x - y)$

3. Factor fully.

(a)  $-2x^2 + 8x - 10$

(b)  $x^2 - 4x - 32$

(c)  $63m^2 - 7n^2$

(d)  $16a^2 - 24ab + 9b^2$

(e)  $21x^2 - 13xy + 2y^2$

(f)  $-2x^2 + 7x + 15$

4. What are ALL possible integer values,
- $k$
- , such that
- $x^2 + kx - 32$
- can be factored?

5. Factor fully.

(a)  $3(b^2 - 4) + a^2(b^2 - 4)$

(b)  $18(2 - x) + x^2(x - 2) + 3x(x - 2)$

6. Name an integer,
- $k$
- , such that the quadratic
- $6x^2 - 22x + k$
- can be factored.