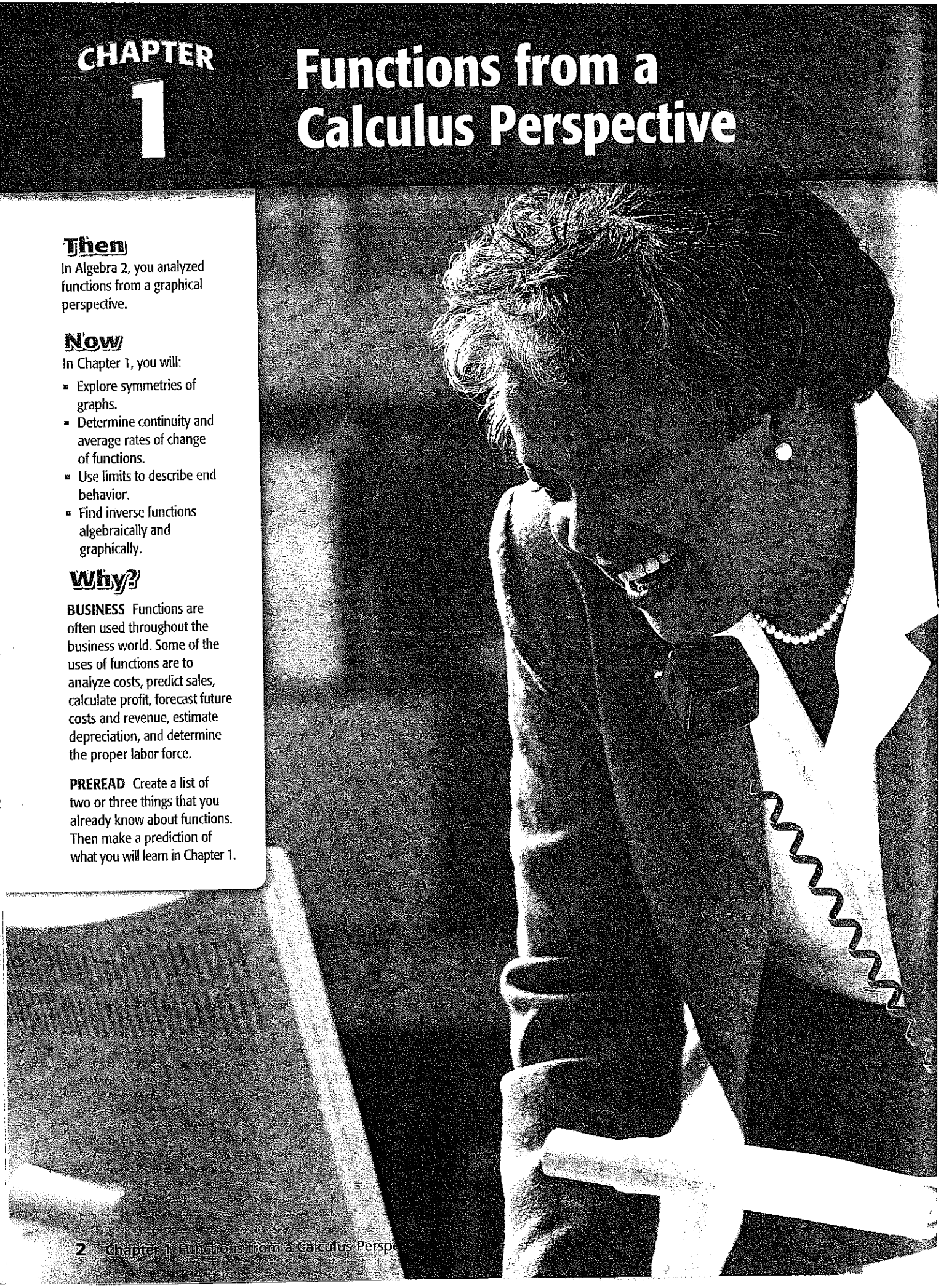
CHAPTER 1

Functions from a Calculus Perspective



Then

In Algebra 2, you analyzed functions from a graphical perspective.

Now

In Chapter 1, you will:

- Explore symmetries of graphs.
- Determine continuity and average rates of change of functions.
- Use limits to describe end behavior.
- Find inverse functions algebraically and graphically.

Why?

BUSINESS Functions are often used throughout the business world. Some of the uses of functions are to analyze costs, predict sales, calculate profit, forecast future costs and revenue, estimate depreciation, and determine the proper labor force.

PREREAD Create a list of two or three things that you already know about functions. Then make a prediction of what you will learn in Chapter 1.

Get Ready for Chapter 1

Diagnose Readiness You have two options for checking Prerequisite Skills.

Text Option

Take the Quick Check below.

QuickCheck

Graph each inequality on a number line. (Prerequisite Skill)

1. $x > -3$
2. $x \leq -2$
3. $x \leq -5$
4. $x > 1$
5. $7 \geq x$
6. $-4 < x$

Solve each equation for y. (Prerequisite Skill)

7. $y - 3x = 2$
8. $y + 4x = -5$
9. $2x - y^2 = 7$
10. $y^2 + 5 = -3x$
11. $9 + y^3 = -x$
12. $y^3 - 9 = 11x$

13. **DONUTS** A bakery uses the formula $12D = n$, where D is the number of dozens of donuts and n is the total number of donuts sold to determine how many dozens of donuts were sold. Solve the equation for D, and determine how many dozens of donuts were sold if 306 donuts were sold. (Prerequisite Skill)

Evaluate each expression given the value of the variable. (Prerequisite Skill)

14. $3y - 4, y = 2$
15. $2b + 7, b = -3$
16. $x^2 + 2x - 3, x = -4a$
17. $5z - 2z^2 + 1, z = 5x$
18. $-4c^2 + 7, c = 7a^2$
19. $2 + 3p^2, p = -5 + 2n$

20. **TEMPERATURE** The formula $C = \frac{5}{9}(F - 32)$, where C represents a temperature in degrees Celsius and F in degrees Fahrenheit, can be used to convert between the two measures. If the temperature on a thermometer reads 73°F, what is the temperature in degrees Celsius rounded to the nearest tenth? (Prerequisite Skill)

Online Option

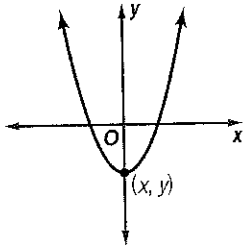
Math Online Take a self-check Chapter Readiness Quiz at glencoe.com.

New Vocabulary

English	Page	Español
interval notation	5	notación del intervalo
function	5	función
function notation	7	notación de la función
implied domain	7	dominio implicado
zeros	15	ceros
roots	15	raíz
even function	18	función uniforme
odd function	18	función impar
limit	24	límite
end behavior	28	comportamiento final
increasing	34	aumento
decreasing	34	el disminuir
constant	34	constante
maximum	36	máximo
minimum	36	mínimo
extrema	36	extrema
secant line	38	línea secante
parent function	45	función del padre
transformation	46	transformación
reflection	48	reflexión
dilation	49	dilatación
composition	58	composición

Review Vocabulary

parabola • p. P9 • parábola the graph of a quadratic function



slope • Prerequisite Skill • línea pendiente the ratio of the change in y-coordinates to the change in x-coordinates