

Practice Chapter 4 Test

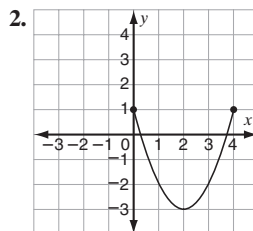
Name _____ Date _____

Write the domain and range of each relation and tell whether the relation is a function.

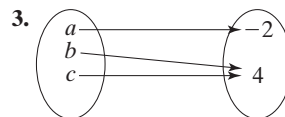
1.

x	y
-3	-8
-1	-2
0	1
2	7
4	13

Domain: $\{-3, -1, 0, 2, 4\}$;
Range: $\{-8, -2, 1, 7, 13\}$;
function



Domain: $\{x \mid 0 \leq x \leq 4\}$;
Range: $\{y \mid -3 \leq y \leq 1\}$;
function



Domain: $\{a, b, c\}$;
Range: $\{-2, 4\}$; function

4. Does the ordered pair (2, 3) belong to the relation $y = x^3$?

$3 \stackrel{?}{=} 2^3$; $3 \neq 8$ false; no

5. Does the ordered pair (3, -36) belong to the relation $y = -4x^2$?

$-36 \stackrel{?}{=} -4(3)^2$; $-36 \stackrel{?}{=} -4(9)$;
 $-36 = -36$ true; yes

6. Given the relation $K = \{(-7, 9), (x, 8), (-6, 4), (-5, 2)\}$, which replacement for x makes this relation a function?

a. -7 c. -5
b. -6 d. -4
-4; d

Write a function rule for each situation. Use function notation.

7. the area of a right isosceles triangle, A , when both base and height are s

$$A(s) = \frac{1}{2}s^2$$

8. the total cost, c , for h hours at an hourly rate of \$32.50 per hour

$$c(h) = 32.5h$$

Write a rule that expresses the relationship for each pair of input and output values in each table.

9.

x	y
-3	6
-1	2
0	0
2	-4
4	-8

$$y = -2x$$

10.

x	y
-3	-21
-1	-7
0	0
2	14
4	28

$$y = 7x$$

11.

x	y
-3	-11
-1	-5
0	-2
2	4
4	10

$$y = 3x - 2$$

12.

x	y
-3	-15
-1	-7
0	-3
2	5
4	13

$$y = 4x - 3$$

Determine whether each sequence could be geometric, arithmetic, or neither. If geometric or arithmetic, write the next four terms.

13. 100, 50, 0, -50, ...

$d = -50$; $-50 - 50 = -100$
 $-100 - 50 = -150$; $-150 - 50 = -200$
 $-200 - 50 = -250$
arithmetic; -100, -150, -200, -250

14. 19, 18, 20, 19, ...

$18 - 19 = -1$; $20 - 18 = 2$; $2 \neq -1$
 $\frac{18}{19} \neq \frac{20}{18}$; not geometric nor arithmetic
neither

15. 8, 4, 2, 1, ...

$r = 0.5$; $1(0.5) = 0.5$; $0.5(0.5) = 0.25$;
 $0.25(0.5) = 0.125$; $0.125(0.5) = 0.0625$
geometric; 0.5, 0.25, 0.125, 0.0625

Use after

SOURCEBOOK Lessons 4-1-4-5, pages 94-109.

Chapter 4 105

Practice Book

CHAPTER TEST

Objective

- To assess students' mastery of the objectives of Chapter 4

Background See *Comprehensive Assessment*, pages xxiii-xxv.

Preparing for Assessment

Remind students that in Chapter 4, they learned about relations and functions, how to identify domains and ranges, and how to determine whether a relation is a function. They wrote function rules for verbal situations and for tables of values. Students recognized and extended arithmetic and geometric sequences, learned how to write rules to describe such sequences, and learned how to find a given term of a sequence. Explain that the purpose of this test is to assess students' understanding. It may be helpful to review some Chapter 4 lessons before administering the *Practice Chapter 4 Test*.



Test-Taking Tip

Suggest that students skip over a difficult item and return to it once they have completed the remaining items on the test.

Using the Assessment

Practice Chapter 4 Test Use Practice Book pp. 105-106

- Before administering the free-response *Practice Chapter 4 Test*, tell students how they are going to be assessed and the criteria that will be applied in judging their performance.
- Distribute the *Practice Chapter 4 Test*, and allow students time to scan the pages to get a feel for the tasks they will be asked to perform.



Following the Assessment

Item Analysis

Use Teacher's Edition p. I14E

■ The items in *Practice Chapter 4 Test* are correlated to instructional objectives, associated common error diagnoses, and recommended prescriptive tools.

Chapter 4 Post Test

Use Teacher's Edition p. I14F

■ After using recommended prescriptive tools for *Practice Chapter 4 Test*, administer *Chapter 4 Post Test* to reassess. Use the Item Analysis on page 114E to identify skills and concepts in which students continue to have difficulty. Revisit appropriate prescriptive tools as necessary.

Differentiated Instruction

● Build tests to address varying ability levels based on the results of *Practice Chapter 4 Test* and *Chapter 4 Post Test* using additional test items available on **Practice/Test Generator CD-ROM**.



The *Chapter 4 Post Test* can be placed in students' *Math Portfolios*.

Find the indicated term of each arithmetic sequence.

16. a_{10} of 20, 9, -2, -13, ...

$$d = -11; a_{10} = 20 + 9(-11) = -79$$

17. a_{100} of 2, 2.5, 3, 3.5, ...

$$d = 0.5; a_{100} = 2 + 99(0.5) = 51.5$$

18. a_{10} of $\frac{2}{3}, \frac{4}{3}, 2, \frac{8}{3}, \dots$

$$d = \frac{2}{3}; a_{10} = \frac{2}{3} + 9\left(\frac{2}{3}\right) = \frac{20}{3}$$

Write a function rule for the n th term of each arithmetic sequence.

19. 15, 18, 21, 24, ...

$$d = 3; a_n = 15 + (n - 1)3 = 15 + 3n - 3 = 3n + 12$$

20. -12, -17, -22, -27, ...

$$d = -5; a_n = -12 + (n - 1)(-5) = -12 + (-5n) + 5 = -5n - 7$$

21. 14.6, 16.9, 19.2, 21.5, ...

$$d = 2.3; a_n = 14.6 + (n - 1)2.3 = 14.6 + 2.3n - 2.3 = 2.3n + 12.3$$

Find the indicated term of each geometric sequence.

22. a_7 of $\frac{2}{27}, -\frac{2}{9}, \frac{2}{3}, -2, \dots$

$$r = -3; a_7 = \frac{2}{27}(-3)^6 = 54$$

23. a_6 of 50, 70, 98, 137.2, ...

$$r = 1.4; a_6 = 50(1.4)^5 = 268.912$$

24. a_9 of $\frac{5}{2}, \frac{5}{6}, \frac{5}{18}, \frac{5}{54}, \dots$

$$r = \frac{1}{3}; a_9 = \frac{5}{2}\left(\frac{1}{3}\right)^8 = \frac{5}{13,122}$$

Write a recursive formula for the n th term of each geometric sequence.

25. -48, 24, -12, 6, ...

$$r = 24 \div (-48) = -\frac{1}{2}$$

$$a_n = \left(-\frac{1}{2}\right) \cdot a_{n-1}$$

26. 80, 48, 28.8, 17.28, ...

$$r = 48 \div 80 = 0.6$$

$$a_n = 0.6 \cdot a_{n-1}$$

27. 5, 10, 20, 40, ...

$$r = 10 \div 5 = 2$$

$$a_n = 2 \cdot a_{n-1}$$

Problem Solving

28. Gloria opens a savings account in January with \$275. Each month she increases her deposit by \$10. How much money will she deposit the following December?

$$275 + (11)(10) = 385; \text{ She will deposit } \$385 \text{ in December.}$$

29. Philip bought a house for \$420,000. It decreased 10% in value each year. What was Philip's house worth 3 years after he bought it?

$$420,000 \cdot (0.9)^3 = 306,180; \text{ The house will be worth } \$306,180.$$

Tell About It

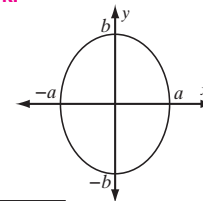
Explanations may vary. Check students' work.

Explain how you solve the problem. Show all your work.

30. Write the domain and range.

Is the relation a function?

Domain: $\{x \mid -a \leq x \leq a\}$; Range: $\{y \mid -b \leq y \leq b\}$;
not a function because a vertical line can intersect the graph at more than one point



For More Exercises



Practice/Test Generator



■ Build your own quiz.