Functions Modeling Change A Preparation for Calculus 5th Edition Connally Test Bank

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Chapter 1 Section 1.1

1. Does the following graph give *y* as a function of *x*?



Ans: yes

Learning Objective: Decide whether a given relation is a function.Decide whether a given relation is a function.Decide whether a given relation is a function.; Recognize when a relationship between two quantities determines a function and use and interpret function notation. difficulty: easy

2. Use the following table to find p(20). If there is more than one answer, enter the smallest first and separate them by semicolons.

X	0	10	20	30	40
p(x)	0	20	30	40	20

Ans: 30

Learning Objective: Use and interpret function notation. difficulty: easy

3. Use the following table to find *a* such that p(a) = 4. If there is more than one answer, enter the smallest first and separate them by semicolons.

X	0	1	2	3	4
p(x)	0	2	3	4	2

Ans: 3

Learning Objective: Use and interpret function notation. difficulty: easy

4. Let y = p(x) be defined by the following graph. What is p(0)?





Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas.; Use and interpret function notation. difficulty: easy

5. Let y = p(x) be defined by the following graph. If p(x) = g, what is x? If there is more than one answer, enter the smallest first and separate them by semicolons.





Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas.; Use and interpret function notation. difficulty: easy

6. Let y = p(x) be defined by the following graph. Is p(f/2) closer to g, h or i?





Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas.; Use and interpret function notation. difficulty: medium

7. Let y = p(x) be defined by the following graph. Which of the following are true?



- A) If p(x) > 0, then x < b.
- B) If p(x) > 0, then x > b.
- C) If p(x) > i, then x < a.
- D) If p(x) > i, then x > a.

Ans: A, C Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: medium

- 8. Write the relationship of population, *P*, as a function of time, *t*, in years using function notation. Assume a direct relationship.
 - A) P = f(t)
 - $\mathbf{B}) \qquad t = f(P)$
 - $C) \qquad t = f(1/P)$
 - $D) \qquad P = f(1/t)$

Ans: A Learning Objective: Use and interpret function notation. difficulty: easy

- 9. If you were to draw a graph representing the total amount of concrete, *A*, used to pour *x* square feet of sidewalk, which axis would *x* be on?
 - A) horizontal
 - B) vertical

Ans: A Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: easy

10. Consider the information in the following table.

S	6	3	7	5	11	4	12
t	-4	3	1	-1	0	1	8

Could *t* be a function of *s*?

Ans: yes

Learning Objective: Decide whether a given relation is a function.Decide whether a given relation is a function.Decide whether a given relation is a function.; Recognize when a relationship between two quantities determines a function and use and interpret function notation. difficulty: medium

11. You are looking at a graph of *P*, a function of *t*. Is it possible for the graph to intercept the *P*-axis 5 times?Ans: no

Learning Objective: Decide whether a given relation is a function. difficulty: medium

12. What could the following graph reasonably represent?



- A) The average daily temperature of Denver over a one-year time period with t = 0 being July 1.
- B) The average daily temperature of Denver over a one-year time period with t = 0 being January 1.
- C) The population of Denver between 1900 and 2000 with t = 0 being 1900.
- D) The infant mortality rate in Denver between 1900 and 2000 with t = 0 being 1900.

Ans: B Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: medium

13. Which of the following graphs is mostly likely to represent the resale price of a car which depreciates steadily until it is worthless?



Ans: VI

Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: hard

- 14. You have \$90 to spend on lunches this month. Each day, you can pack a lunch for about \$1.75, or you can buy lunch at the cafeteria for \$5.25. Let *p* be the number of times you pack a lunch and *b* be the number of times you buy lunch. The formula for *p* in terms of *b* is given by *p* = _____ ____ *b*. Round answers to 2 decimal places. Part A: 51.43
 Part B: 3.00
 Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: medium
- 15. Find the value of the expression $x^2 3xy$ if x = 3 and $y = \frac{1}{5}$.

Ans:
$$\frac{36}{5}$$
 or $7\frac{1}{5}$

Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: easy

16. Solve f(x) = 0 for x using the graph of f(x) below.



Ans: There is no solution to the equation f(x) = 0.

Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas.; Use and interpret function notation. difficulty: hard

- 17. Let f(t) be the number of students (in thousands) attending MNO college t years after 2000. Which of the following statements gives the meaning of the expression f(15) = 13?
 - A) The number of students attending MNO college in the year 2015 is 13,000.
 - B) The number of students attending MNO college in the year 2000 is 13,000.
 - C) The number of students attending MNO college in the year 2013 is 15,000.
 - D) The number of students attending MNO college in the year 2000 is 15,000.

Ans: A Learning Objective: Represent and interpret functions using words, tables, graphs, and formulas. difficulty: medium

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Chapter 1 Section 1.1

18.	The following chart gives the number of students in a class that are a specific height in inches						
	height	55 inches	60 inches	65			
	number of students	4	7	6			
	 a) Is the number of student b) Is the height in each cate Ans: a) yes b) yes Learning Objective: Repress formulas. difficulty: mediation 	ts in each category a function egory a function of the numb sent and interpret functions u edium	n of the height? ber of students in that category sing words, tables, graphs, an	y? Id			
19.	9. The following chart gives the number of students in a class that are a specific height in inches						
	height number of students	55 inches 5	60 inches 7	65 4			
	 a) What is the most common b) What is the least common Ans: a) 60 inches b) 75 inches Learning Objective: Repress formulas. difficulty: ea 	on height of students in this of on height of students in this of sent and interpret functions usy	class? class? sing words, tables, graphs, an	ıd			
20.	A box with volume 180 ft ³ has a square base of side length <i>s</i> ft and a height of <i>h</i> ft. Write a formula for the height of the box as a function of the side length of the box. Ans: $h = \frac{180}{s^2}$						
	formulas. difficulty: ha	rd	sing words, tables, graphs, an	u			
21.	Express this relationship in $f(x)$. Calories burned. <i>c</i> . is a	function notation (that is, y is function of activity, <i>a</i> .	s a function of x is written $y =$:			

Ans: c = f(a)

Learning Objective: Use and interpret function notation. difficulty: easy