

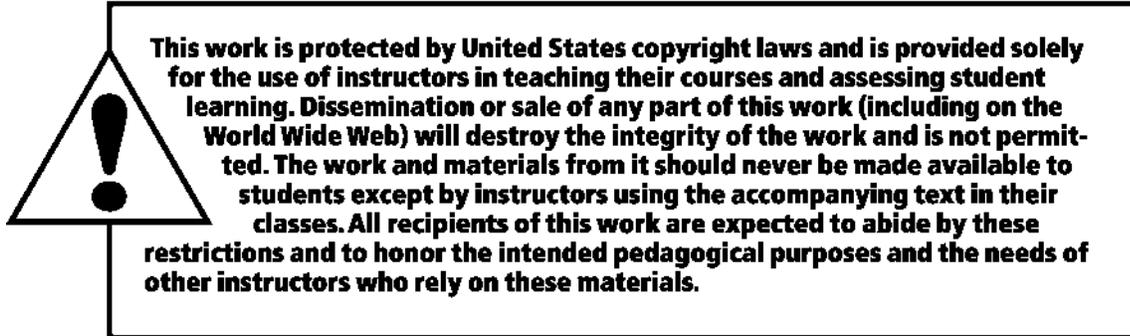
ANSWERS
TO THE WORKSHEETS

CHRISTINE VERITY

MATHEMATICS IN ACTION:
ALGEBRAIC, GRAPHICAL, AND
TRIGONOMETRIC PROBLEM SOLVING
SIXTH EDITION

The Consortium
for Foundation Mathematics





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ISBN-13: 978-0-13-516258-3

ISBN-10: 0-13-516258-0

Complete Answers

Chapter 1 FUNCTION SENSE

Activity 1.1

Key Terms

1. ordered pair
2. dependent
3. variable
4. independent
5. function

Practice Exercises

6. The input is x .
7. The output is $h(x)$ or y .
8. The function name is h .
9. y equals h of x .
10. The input is 7.
11. The output is 6.931.
12. The function name is g .
13. g of 7 equals 6.931.
14. The input is t .
15. The output is 762.
16. The function name is f .
17. 762 equals f of t .
18. The input is hours.
19. The output is salary.
20. The function name is s .
21. Salary is a function of hours, or salary equals s of hours.
22. $C(\text{price}) = \text{commission}$
23. (6000, 20)
24. Yes
25. Each input has only one output.
26. No
27. The input 2 has two different outputs.
28. The input 9 is paired with three different outputs.

Concept Connections

29. Answers may vary. One example is the output is the wages received.
30. No. The input, number of hours worked, is paired with 4 different outputs, wages received.

Activity 1.2

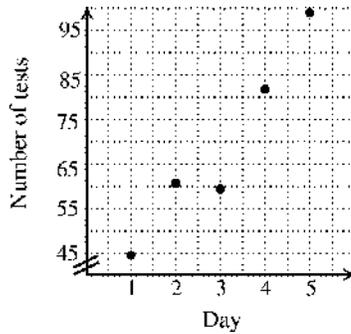
Key Terms

1. Practical range
2. Practical domain

Practice Exercises

3. $f(3) = 9$
4. $f(-2.7) = -19.5$
5. $f(c) = 5c - 6$
6. $g(4) = -90.2$
7. $g(-5.1) = -226.7$
8. $g(b) = -8b^2 + 6.2b + 13$
9. $h(6) = 11$
10. $h(-14.7) = 11$
11. $h(d) = 11$
12. $p(-2) = -2.5$
13. $p(0.5) = 10$
14. $p(a) = \frac{5}{a}$

8.



9. {1, 2, 3, 4, 5}

10. {44, 61, 59, 82, 98}

11. Yes

12. Since a particular day of the week is the input, the only input values that are defined are integers from 1 through 5.

13. No

14. The number of student make-up tests cannot be predicted.

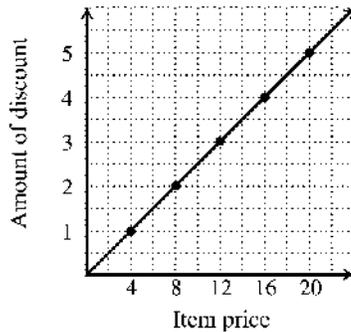
15. The employee discount on an item of food is calculated by multiplying the price of the food item by 0.25.

16. If d represents the discount amount on an item priced at p dollars, then $d = 0.25p$.

17. Answers may vary.

Item price	4	8	12	16	20
Amount of discount	1	2	3	4	5

18.

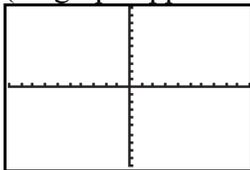


19. No

20. Since the function is defined for all values between the input values in the table, it is appropriate to connect the data points with a smooth, continuous curve.

21. $y = 0.0005x^2$

(no graph appears on screen)



x	-3	-2	-1	0	1	2	3
y	0.0045	0.002	0.0005	0	0.0005	0.002	0.0045

23. The y values are very small. Therefore, you need to have $Y_{\max} = 0.01$ and $Y_{\min} = -0.01$.

19. The population of people living on less than \$1.25/day is decreasing with time.
20. The graph falls to the right.
21. The time in years
22. The number of internet users in millions
23. The number of internet users in China increases with time.
24. The graph rises to the right.
25. The time in years
26. The number of billions of pounds spent on defense
27. The spending decreases until the year 1997; then it increases.
28. First the graph falls, and then it rises to the right.

Concept Connections

29. It is a minimum since the line is decreasing from 1989 to 1997 and increasing from 1997 to 2009.
30. The maximum occurs at 2010. The line is increasing until that year. It has the greatest output value.

Activity 1.6

Key Terms

1. average rate of change
2. scatterplot

Practice Exercises

3. 0.789
4. The national debt is increasing at an average rate of 0.789 trillion dollars/year.
5. 0.315
6. None
7. The national debt is never decreasing over the 30-year time period.
8. From 2005 to 2010
9. 1.126
10. During the period from 2005 to 2010, the national debt increased by 1.126 trillion dollars/year.
11. No
12. The national debt is not constant during the 30-year time period.
13. 0.422
14. Over the 30-year period, the national debt is increasing at an average rate of 0.422 trillion dollars/year.
15. The graph would rise to the right.
16. 2.8
17. The population is increasing at an average rate of 2.8 million people/year.
18. 0.9
19. None
20. The national population is never decreasing over the 100-year time period.
21. From 1990 to 2000
22. 3.2
23. During the period from 1990 to 2000, the national population increased by 3.2 million people per year.
24. No
25. The national population is not constant during the 100-year time period.
26. 2.17
27. Over the 100-year period, the national population is increasing at an average rate of 2.17 million people/year.
28. The graph would rise to the right.