1

(handwritten note, top right):
CHAPTER 1 REVIEW
Pg 53 #'s 1-40
word problems at
the end.

REVIEW KEY VOCABULARY (STUDY THESE)

- variable, *p. 2*
- algebraic expression, *p. 2*
- evaluate an algebraic expression, *p. 2*
- power, exponent, base, *p. 3*
- order of operations, *p. 8*

- verbal model, *p. 16*
- rate, unit rate, *p. 17*
- equation, inequality, *p. 21*
- open sentence, *p. 21*
- solution of an equation or inequality, *p. 22*
- Solve

- formula, *p. 30*
- function, *p. 35*
- input, output, *p. 35*
- domain, range, *p. 35*
- independent variable, *p. 36*
- dependent variable, *p. 36*

(handwritten): • TERMS • FACTORS

VOCABULARY EXERCISES

In Exercises 1–3, copy and complete the statement.

1. In the power 7^{12}, __7__ is the base and __12__ is the exponent.

2. A(n) __EQUATION__ is a statement that contains the symbol $=$.

3. A(n) __ALGEBRAIC EXPRESSION__ is an expression that includes at least one variable.

4. **WRITING** *Describe* how you can tell by looking at the graph of a function which variable is the input variable and which is the output variable.

(handwritten):
When you LOOK AT A GRAPH,
THE X-AXIS IS THE INPUT AND
THE Y-AXIS IS THE OUTPUT.

1.1 Evaluate Expressions
pp. 2–7

Evaluate the expression.

5. $3 + x$ when $x = 13$ __16__

6. $y - 2$ when $y = 18$ __16__

7. $\dfrac{20}{k}$ when $k = 2$ __10__

8. $40w$ when $w = 0.5$ __20__

9. z^2 when $z = 20$ $20^2 = $ __400__

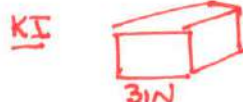10. w^3 when $w = 0.1$ $(.1)^3 = (.1 \wedge 3 \text{ IN CALC}) = $ __.001__

11. **DVD STORAGE** A DVD storage sleeve has the shape of a square with an edge length of 5 inches. What is the area of the front of the sleeve?

(handwritten): Area $= 5^2$ | Area of the front sleeve Is 25 SQ IN or 25 IN²

12. **NOTEPAPER** You store square notepaper in a cube-shaped box with an inside edge length of 3 inches. What is the volume of the box?

(handwritten): Volume $= 3^3$ | Volume of box is 27 cubic IN. or 27 IN³

1.2 Apply Order of Operations
pp. 8–12

Evaluate the expression.

13. $12 - 6 \div 2 = 12 - 3 = $ __9__

14. $1 + 2 \cdot 9^2 = 1 + 2(81) = $ __163__

15. $3 + 2^3 - 6 \div 2$ $3 + 8 - 3 = $ __8__

16. $15 - (4 + 3^2)$ $15 - (13) = $ __2__

17. $\dfrac{20 - 12}{5^2 - 1} \to \dfrac{8}{24} = $ __$\frac{1}{3}$__

18. $50 - [7 + (3^2 \div 2)]$ $50 - (7 + 4.5) = 50 - 11.5 = $ __38.5__

Evaluate the expression when $x = 4$.

19. $15x - 8$ $15(4) - 8 = $ __52__

20. $3x^2 + 4$ $3(4)^2 + 4 = $ __52__

21. $2(x - 1)^2$ $2(4-1)^2 = 2 \cdot 3^2 = $ __18__

1.3 Write Expressions

pp. 15–20

Translate the verbal phrase into an expression.

22. The sum of a number k and 7 $\boxed{K+7}$

23. 5 less than a number z $\boxed{Z-5}$

24. The quotient of a number k and 12 $\boxed{K/12 \text{ OR } K \div 12}$

25. 3 times the square of a number x $\boxed{3 \cdot x^2 \text{ or } 3x^2}$

26. **TOLL ROADS** A toll road charges trucks a toll of $3 per axle. Write an expression for the total toll for a truck.

KI: $3/axle
Variable: A = # AXLES $\boxed{3A}$

27. **SCHOOL SUPPLIES** You purchase some notebooks for $2.95 each and a package of pens for $2.19. Write an expression for the total amount (in dollars) that you spend.

Variables
KI $2.95 → NOTEBOOK   N = # NOTEBOOKS
    $2.19 → PENS   P = # PENS

$\boxed{2.95N + 2.19P}$

1.4 Write Equations and Inequalities

pp. 21–26

Write an equation or an inequality.

28. The product of a number z and 12 is 60. $\boxed{Z \cdot 12 = 60}$ OR $\boxed{12Z = 60}$

29. The sum of 13 and a number t is at least 24. $\boxed{13 + T \geq 24}$

Check whether the given number is a solution of the equation or inequality.

30. $3x - 4 = 10$; 5 $\boxed{\text{Not sol}}$
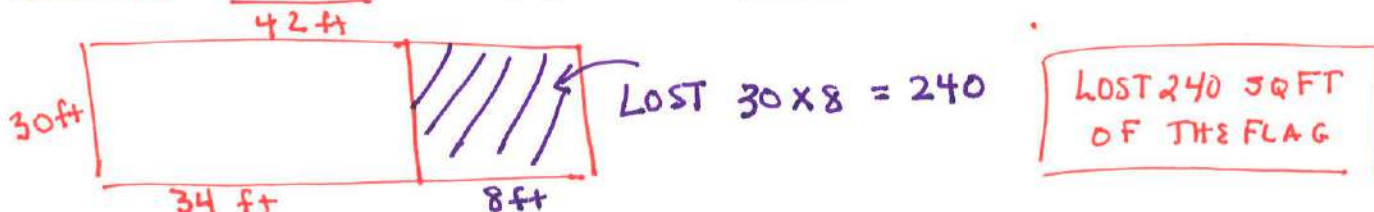
$3(5) - 4 = 10$
$11 \neq 10$ F

31. $4y - 2 \geq 2$; 3 $\boxed{\text{Sol}}$

$4(3) - 2 \geq 2$
$10 \geq 2$ T

32. $2d + 4 < 9d - 7$; 3 $\boxed{\text{SOLUTION}}$

$2(3) + 4 < 9(3) - 7$
$10 < 20$ T

1.5 Use a Problem Solving Plan

pp. 28–33

33. **U.S. HISTORY** The flag that inspired the national anthem was a rectangle 30 feet wide and 42 feet long. Pieces of the flag have been lost. It is now 30 feet wide and 34 feet long. How many square feet have been lost?

42 ft
30 ft
34 ft   8 ft

LOST 30 × 8 = 240 $\boxed{\text{LOST 240 SQ FT OF THE FLAG}}$

34. **PATTERNS** A grocery clerk stacks three rows of cans of fruit for a display. Each of the top two rows has 2 fewer cans than the row beneath it. There are 30 cans altogether. How many cans are there in each row?

Row 1   X - 4
Row 2   X - 2
Row 3

X = # of cans in bottom row

$3x - 6 = 30$
$\quad\; +6 \;\; +6$
$\overline{3x = 36}$
$\boxed{X = 12}$

$\boxed{\text{Bottom row has 12 cans, then 10 cans, then 8 cans}}$

Make a table for the function. Identify the range of the function.

35. $y = x - 5$
   Domain: 10, 12, 15, 20, 21

x	10	12	15	20	21
y	5	7	10	15	16

Range: 5, 7, 10, 15, 16

36. $y = 3x + 1$
   Domain: 0, 2, 3, 5, 10

x	0	2	3	5	10
y	1	7	10	16	31

Range: 1, 7, 10, 16, 31

Write a rule for the function.

37.

Input, x	0	2	4	5
Output, y	4	6	8	9

+4 +4 +4 +4

$$y = x + 4$$

38.

Input, x	0	3	4	6
Output, y	0	15	20	30

15/3= 5   20/4= 5   30/6= 5

$$y = 5x$$

X   Y
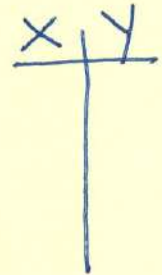
39. Graph the function $y = 4x - 3$ with domain 1, 2, 3, 4, and 5.

x	1	2	3	4	5
y	1	5	9	13	17

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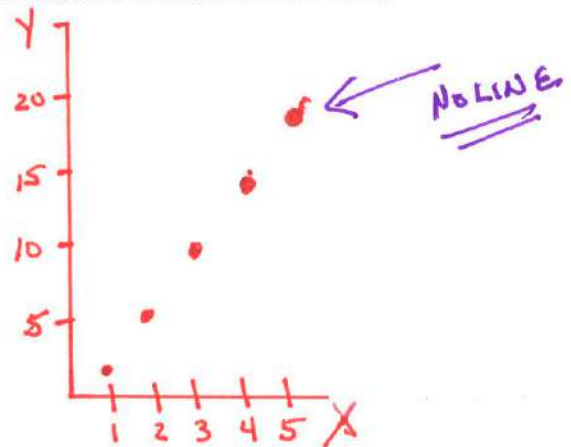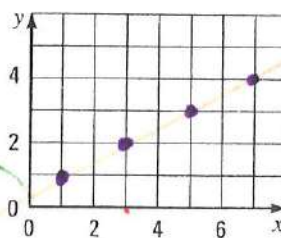
40. Write a rule for the function represented by the graph. Identify the domain and the range of the function.

Table

X	1	3	5	7
Y	1	2	3	4

$$y = \tfrac{1}{2}x + \tfrac{1}{2}$$

Domain = 1, 3, 5, 7

RANGE = 1, 2, 3, 4

Mental check!

$\tfrac{1}{2}(1) + \tfrac{1}{2} = 1$ ✓

$\tfrac{1}{2}(3) + \tfrac{1}{2} = 2$ ✓

$\tfrac{1}{2}(5) + \tfrac{1}{2} = 3$ ✓

$\tfrac{1}{2}(7) + \tfrac{1}{2} = 4$
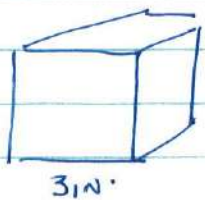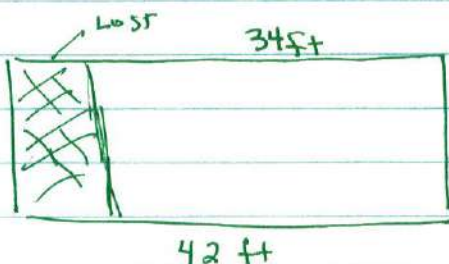
WORD   PROBLEMS   #'s   11, 12,   33, 34

(11) K I:

SQUARE
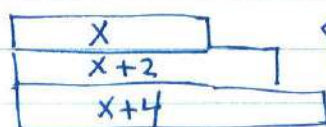
DVD   5IN

5IN

$AREA = 5 \times 5 = \boxed{25 \, IN^2}$

(12) K I:

Cubed box

3IN.

$Volume = \ell \cdot w \cdot h$
$= 3 \cdot 3 \cdot 3 \quad or \; 3^3$

$\boxed{Volume \; is \; 27 \, IN^3}$

(33) K I:

LOST

34ft

30 ft

42 ft

$TOTAL \; FLAG \; = \; 42 \times 30 \; = \; 1260 \; ft^2$
$FLAG \; Remaining \; = \; 34 \times 30 \; = -1,020 \; ft^2$

$\boxed{240 \, ft^2 \; lost}$

(34) K I:

| X |
| X+2 |
| X+4 |

TOP 2 ROWS have 2 less Cans

TOTAL OF 30 CANS

X = # OF CANS ON TOP ROW

$EQ: \quad X + (X+2) + (X+4) = 30$
$3X + 6 = 30$
$\boxed{X = 24}$

$\boxed{X = 24}$

$\boxed{The \; ROWS \; have \; 8 \, Cans, \; 10 \, Cans \; \& \; 12 \, Cans}$