

# CHAPTER REVIEW

## REVIEW KEY VOCABULARY (STUDY THESE)

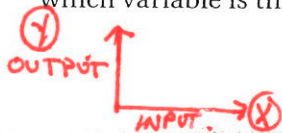
CHAPTER 1 REVIEW  
Pg 53 #'s 1-40  
Word problems at the end.

- 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
- TERMS
- FACTORS

### VOCABULARY EXERCISES

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

- In the power  $7^{12}$ , 7 is the base and 12 is the exponent.
- A(n) EQUATION is a statement that contains the symbol =.
- A(n) ALGEBRAIC EXPRESSION is an expression that includes at least one variable.
- 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.



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.

- $3 + x$  when  $x = 13$  (16)
- $y - 2$  when  $y = 18$  (16)
- $\frac{20}{k}$  when  $k = 2$  (10)
- $40w$  when  $w = 0.5$  (20)
- $z^2$  when  $z = 20$  ( $20^2 = 400$ )
- $w^3$  when  $w = 0.1$  ( $(.1)^3 = (.1 \wedge 3 \text{ IN CALC}) = .001$ )

- 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?

KI DVD 5in

$$\text{Area} = 5^2$$

Area of the front sleeve is 25 sq in or  $25w^2$

- 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?



$$\text{Volume} = 3^3$$

Volume of box is 27 cubic in. or  $27in^3$

## 1.2 Apply Order of Operations

pp. 8–12

Evaluate the expression.

- $12 - 6 \div 2 = 12 - 3 = 9$
  - $1 + 2 \cdot 9^2 = 1 + 2(81) = 163$
  - $3 + 2^3 - 6 \div 2 = 3 + 8 - 3 = 8$
  - $15 - (4 + 3^2) = 15 - (13) = 2$
  - $\frac{20 - 12}{5^2 - 1} \rightarrow \frac{8}{24} = \frac{1}{3}$
  - $50 - [7 + (3^2 \div 2)] = 50 - (7 + 4.5) = 50 - 11.5 = 38.5$
- Evaluate the expression when  $x = 4$ .
- $15x - 8 = 15(4) - 8 = 52$
  - $3x^2 + 4 = 3(4)^2 + 4 = 52$
  - $2(x - 1)^2 = 2(4 - 1)^2 = 2 \cdot 3^2 = 18$

# 1.3 Write Expressions

pp. 15-20

Translate the verbal phrase into an expression.

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

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

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

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:  $A = \# \text{ AXLES}$   $\boxed{3A}$

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.

$KI$  \$2.95 - NOTEBOOKS  $N = \# \text{ NOTEBOOKS}$   
 \$2.19 - PENS  $P = \# \text{ PENS}$   $\boxed{2.95N + 2.19P}$

# 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  $\boxed{\text{NOT SOL}}$   
 $3(5) - 4 = 10$   
 $11 \neq 10$   $\underline{\underline{F}}$

31.  $4y - 2 \geq 2$ ; 3  $\boxed{\text{SOL}}$   
 $4(3) - 2 \geq 2$   
 $10 \geq 2$   $\underline{\underline{T}}$

32.  $2d + 4 < 9d - 7$ ; 3  $\boxed{\text{SOLUTION}}$   
 $2(3) + 4 < 9(3) - 7$   
 $10 < 20$   $\underline{\underline{T}}$

# 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?



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?



# 1.6 Represent Functions as Rules and Tables

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

Write a rule for the function.

37.

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

+4 +4 +4 +4

$y = x + 4$

36.  $y = 3x + 1$

Domain: 0, 2, 3, 5, 10

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

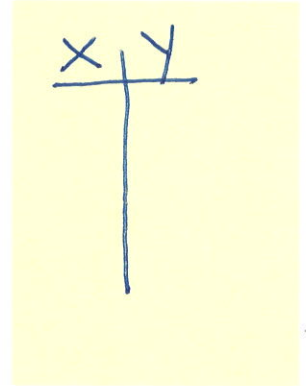
Range: 1, 7, 10, 16, 31

38.

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

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

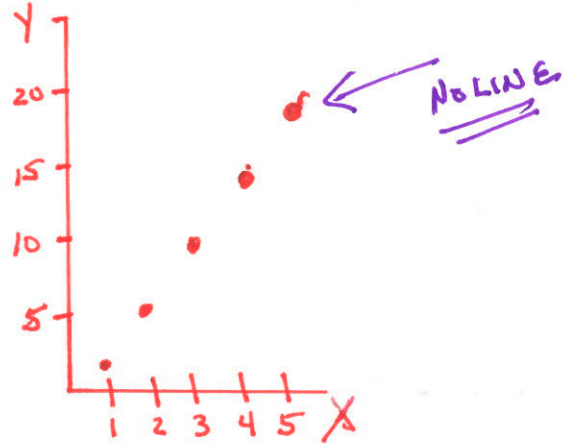
$y = 5x$



# 1.7 Represent Functions as Graphs

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

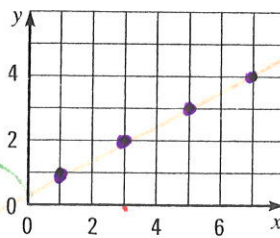


40. Write a rule for the function represented by the graph. Identify the domain and the range of the function.

Table

x	1	3	5	7
y	1	2	3	4

1/2



Domain = 1, 3, 5, 7


Range = 1, 2, 3, 4

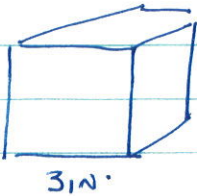
$y = \frac{1}{2}x + \frac{1}{2}$

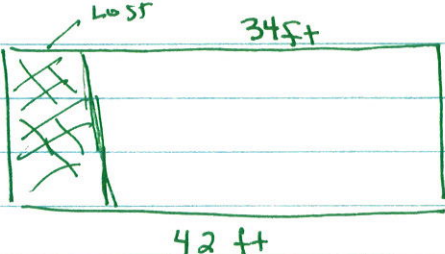
Mental check!

- $\frac{1}{2}(1) + \frac{1}{2} = 1 \checkmark$
- $\frac{1}{2}(3) + \frac{1}{2} = 2 \checkmark$
- $\frac{1}{2}(5) + \frac{1}{2} = 3 \checkmark$
- $\frac{1}{2}(7) + \frac{1}{2} = 4 \checkmark$

WORD PROBLEMS #s 11, 12, 33, 34

11) KI:  SQUARE  
5in  
AREA =  $5 \times 5 = 25 \text{ in}^2$

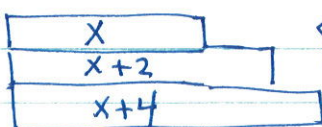
12) KI:  Cubed box  
3in  
Volume =  $l \cdot w \cdot h$   
 $= 3 \cdot 3 \cdot 3 = 27$   
Volume is  $27 \text{ in}^3$

33) KI:  34ft  
30ft  
42ft

TOTAL FLAG =  $42 \times 30 = 1260 \text{ ft}^2$

FLAG Remaining =  $34 \times 30 = 1020 \text{ ft}^2$

$240 \text{ ft}^2$  lost

34) KI:   $x$   
 $x+2$   
 $x+4$  Top 2 rows have 2 less cans

TOTAL OF 30 CANS

X = # OF CANS ON TOP ROW

EQ:  $x + (x+2) + (x+4) = 30$

$3x + 6 = 30$

$x = 24$

The Rows have 8 cans, 10 cans & 12 cans