

SAMPLE PAGES
from
The Competitive Edge

Passing the
EOG 4 in MATH

❖ *SECOND EDITION* ❖

by
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*Chapter 16 is enclosed
to illustrate the quantity
and quality of problems in
this workbook.*

CPC

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CHAPTER

ALGEBRA

VARIABLES

A variable is a symbol (a , b , \blacktriangle , \star) that holds a place open for a number.

OPEN SENTENCE

An Open sentence is a mathematical sentence that contains a variable.

$3 + m$	3 increased by m
$n - 7$	n decreased by 7
$\blacktriangle \times 4$	the product of \blacktriangle and 4
$\star \div 3$	\star divided by 3

PRACTICE

Write an open sentence for each.

1. c decreased by 6 _____
2. the sum of a and 8 _____
3. 7 plus b _____
4. the difference between d and 11 _____
5. g more than 7 _____
6. 8 less than w _____
7. the product of c and 10 _____
8. \blacktriangle times 7 _____
9. the quotient of 27 and \star _____
10. n increased by 14 _____
11. 10 less than m _____
12. 29 times \star _____
13. t decreased by 14 _____
14. the product of a and 4 _____
15. 25 decreased by z _____

EQUATIONS

Equations are sentences with an equal sign.

$$4 + 6 = 10$$

$$8 - r = 4$$

Equations with variables can be solved. To solve for a variable, use the opposite operation.

EXAMPLES

$$3 + m = 12$$

Solve by subtracting.

$$3 + (9) = 12$$

$$12 - 3 = 9$$

$$p - 8 = 1$$

Solve by adding.

$$(9) - 8 = 1$$

$$8 + 1 = 9$$

$$\Delta \times 3 = 24$$

Solve by dividing.

$$(8) \times 3 = 24$$

$$24 \div 3 = 8$$

$$\star \div 4 = 9$$

Solve by multiplying.

$$(36) \div 4 = 9$$

$$9 \times 4 = 36$$

PRACTICE

Solve each for the variable.

1. $12 + y = 127$ _____

2. $\star - 136 = 592$ _____

3. $v \times 37 = 370$ _____

4. $m \div 12 = 14$ _____

5. $376 + w = 1,456$ _____

6. $\blacksquare - 2,937 = 5,129$ _____

7. $\star \times 20 = 400$ _____

8. $c \div 30 = 12$ _____

9. $4,136 + b = 23,400$ _____

10. $o - 2,176 = 9,130$ _____

(continued on next page)

11. $z \times 9 = 450$ _____
12. $p \div 21 = 16$ _____
13. $50,000 + \star = 96,122$ _____
14. $d - 3,999 = 5,879$ _____
15. $o \times 9 = 153$ _____
16. $g \div 15 = 33$ _____
17. $w + 30,126 = 63,927$ _____
18. $\blacksquare \times 8 = 136$ _____
19. $s \div 18 = 29$ _____
20. $596 + w = 37,139$ _____

WRITING AND SOLVING EQUATIONS

An equation is an open sentence that has an equal sign. You can write equations for word problems.

EXAMPLES

Marilyn usually has 12 spoons in the kitchen drawer. Four spoons are in the dishwasher. Write an equation to solve for how many spoons are in the kitchen drawer now. Solve.

Equation: $x + 4 = 12$

Solve: $12 - 4 = \mathbf{8}$

$8 + 4 = 12$

$x = 8$

8 spoons are in the drawer.

James gave his brother 4 baseball cards. He has 17 baseball cards left. Write an equation to solve for how many baseball cards James had before giving some away. Solve.

Equation: $s - 4 = 17$

Solve: $17 + 4 = \mathbf{21}$

$21 - 4 = 17$

$s = 21$

James had 21 baseball cards.

PRACTICE

Write an equation for each problem and solve.

1. If William had 5 more pictures, he would have a total of 19 pictures. How many pictures does William have?

2. April put 550 pennies in a jar. If she now has 2,102 pennies, how many pennies did she have in the jar originally?

3. Charlotte bought some material to make a Halloween costume. She used $4\frac{1}{4}$ yards for the costume. How much material did Charlotte buy if she has $2\frac{1}{4}$ yards left?

4. If Jose had four times as many paper clips as he has now, he would have 160 clips. How many paper clips does Jose have?

5. If Randolph divided his cookies equally with three friends, he would give each friend six cookies. How many cookies does Randolph have?

6. There are 27 swimmers on the swim team. Twelve of the swimmers are boys. How many swimmers are girls?

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7. You had some money and then you spent \$32. You now have \$8. How many dollars did you have before you spent some?

8. Rachel scored 7 points less than Susan. Rachel scored 26 points. How many points did Susan score?

9. You scored 6 points more than Buddy. You scored 29 points. How many points did Buddy score?

10. The golf team finished first in 14 of the 50 matches it entered. In how many matches did it not finish first?



REVIEW

For #1 – 10, choose the correct equation that would be used to solve the problem.

- A used Mustang has 65,850 miles on the odometer. It is guaranteed for 7,600 miles after purchase. How many miles will the Mustang have when the guarantee expires?
 - $65,850 \div s = 7,600$
 - $s - 7,600 = 65,850$
 - $s \times 7,600 = 65,850$
 - $7,600 + s = 65,850$
- The regular price of a jacket decreased by \$18 is \$36. What is the regular price?
 - $\$18 + d = \36
 - $\$36 \div d = \18
 - $d - \$18 = \36
 - $\$18 \times d = \36
- Paul gave 17 of his CDs to his best friend. He then had 34 CDs. How many CDs did Paul have before he gave his friend the CDs?
 - $w - 17 = 34$
 - $17 \div w = 34$
 - $17 \times w = 34$
 - $w + 17 = 34$
- The cost of a TV was increased \$35 to get the regular price of \$199. What was the cost?
 - $z - \$35 = \199
 - $\$35 \div z = \199
 - $\$35 \times z = \199
 - $z + \$35 = \199
- Before your birthday, you had 12 charms for your charm bracelet. After your birthday, you had 21 charms. How many charms did you receive for your birthday?
 - $b + 12 = 21$
 - $b - 12 = 21$
 - $21 \div b = 12$
 - $b \times 12 = 21$
- Joan scored 13 fewer points than Christian. How many points did Christian score if Joan scored 15?
 - $c + 13 = 15$
 - $15 \div c = 13$
 - $c \times 15 = 13$
 - $c - 13 = 15$
- Lewis put 27 pencils in each pencil box. How many pencil boxes will he need for 81 pencils?
 - $81 - g = 27$
 - $27 + g = 81$
 - $81 \times g = 27$
 - $81 \div g = 27$
- William is 36 years old. That is 3 times as old as Evita. How old is Evita?
 - $36 \div y = 3$
 - $36 \times y = 3$
 - $36 - y = 3$
 - $3 + y = 36$
- You scored 3 times as many points as your friend. You scored 27 points. How many points did your friend score?
 - $27 - n = 3$
 - $27 \div n = 3$
 - $3 + n = 27$
 - $27 \times n = 3$
- Marcy is 6 years younger than

- Terry. Marcy is 17 years old. How old is Terry?
- $r - 6 = 17$
 - $17 + r = 6$
 - $17 \div r = 6$
 - $6 \times r = 17$
- For question #1, how many miles will the Mustang have when the guarantee expires?
 - 63,450 miles
 - 58,250 miles
 - 73,450 miles
 - 74,550 miles
 - For question #2, what is the regular price?
 - \$18
 - \$2
 - \$44
 - \$54
 - For question #3, how many CDs did Paul have before he gave his friend the CDs?
 - 51 CDs
 - 17 CDs
 - 2 CDs
 - 41 CDs
 - For question #4, what is the cost of the TV?
 - \$234
 - \$164
 - \$5
 - \$134
 - For question #5, how many charms did you get for your birthday?
 - 11 charms
 - 2 charms
 - 33 charms
 - 9 charms
 - For question #6, how many points did Christian score?
 - 2 points
 - 28 points
 - 48 points
 - 39 points
 - For question #7, how many pencil boxes are needed?
 - 108 boxes
 - 3 boxes
 - 54 boxes
 - 4 boxes
 - For question #8, how old is Evita?
 - 108 years old
 - 39 years old
 - 12 years old
 - 33 years old
 - For question #9, how many points did your friend score?
 - 9 points
 - 30 points
 - 24 points
 - 21 points
 - For question #10, how old is Terry?
 - 11 years old
 - 3 years old
 - 77 years old
 - 23 years old

