

## (1) IOWA ALGEBRA APTITUDE TEST FIFTH EDITION

## Part

## Pre-Algebraic Number Skills and Concepts

Part 1 measures how well students understand some of the mathematical skills and concepts necessary to be prepared for a course in algebra. The first several questions in this part assess computational skills. The remaining items measure conceptual understanding and problem-solving skills.

Lucia invested $y$ dollars. At the end of the first month, her investment gained $10 \%$. The next month, her investment lost $10 \%$ of the total amount she had at the end of the first month. Which of the following statements about the value of Lucia's investment at the end of the second month is true?

A It is worth $y$ dollars
B It is worth more than $y$ dollars
C It is worth less than $y$ dollars
D Not enough information is given

## Interpreting Mathematical Information

Part 2 measures how well students can learn new material that is presented in graphs or text. Some parts contain graphs, and some define a math concept using words and symbols. After each graph or definition is presented, students are asked questions that test their understanding of what they have read.

Refer to point $(x, y)$ on line $p$ below.
If $x$ increases by 2 units and the resulting point stays on line $p$, what happens to the $y$ value?


A Decreases by 1
B Increases by 1
C Increases by 2
D No change

## Representing Relationships

Part 3 measures students' ability to find formulas for numerical relationships. Some of the items present relationships in table form, and students must find the rule for the relationship. Other items measure how well students interpret and represent relationships from the information presented.

Point $A$ has coordinates $(c, d)$, and point $B$ has coordinates $(e, f)$. The coordinates of midpoint $M$ of the line segment $A B$ are found by this rule.

$$
M=\left(\frac{c+e}{2}, \frac{d+f}{2}\right)
$$

For example, if $A$ is $(3,2)$ and $B$ is $(5,4)$, the midpoint $M$ of segment $A B$ is

$$
M=\left(\frac{3+5}{2}, \frac{2+4}{2}\right)=(4,3)
$$

If $A$ is $(y, 4), B$ is $(3,6)$, and the midpoint $M$ of segment $A B$ is $(5,5)$, what is $y$ ?
A 2
B 3
C 5
D Not given

## Using Symbols

Part 4 measures how well students understand some of the important symbols of algebra and how they are used. Concepts include variables, equations, order of operations, commutativity, consecutive integers, and how changing the value of one variable in an equation affects the value of another.

The average, $a$, of two numbers, $m$ and $n$, is given by the following equation:

$$
a=\frac{m+n}{2}
$$

If $m$ is made greater and $n$ is made less, what must happen to $a$ ?
A $a$ remains the same
B $a$ becomes greater
C $a$ becomes less
D Not enough information

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