

## Indicator 23 Class Notes by Mrs. Joshi

### Finding Solutions to Equations-(AL Standard 19, 19a)

I can write one-variable equations to solve real-world or mathematical problems and interpret the solution in the context of the problem.

An **equation** is a mathematical sentence that uses an equal sign, =, to show that two expressions are equal.

#### *Expressions*

$$4 + 8$$

$$x + 8$$

#### *Equations*

$$4 + 8 = 12$$

$$x + 8 = 12$$

To write a word sentence as an equation, look for key words or phrases such as “is,” “the same as,” or “equals” to determine where to place the equal sign.

#### **EXAMPLE 1** Writing Equations

Write the word sentence as an equation.

- a. The sum of a number  $n$  and 7 is 15.

The sum of a number  $n$  and 7 is 15.

$$\underbrace{\quad}_{n + 7} = 15$$

“Sum of” means addition.

- ∴ An equation is  $n + 7 = 15$ .

- b. A number  $y$  decreased by 4 is 3.

A number  $y$  decreased by 4 is 3.

$$\underbrace{\quad}_{y - 4} = 3$$

“Decreased by” means subtraction.

- ∴ An equation is  $y - 4 = 3$ .

- c. 12 times a number  $p$  equals 48.

12 times a number  $p$  equals 48.

$$\underbrace{\quad}_{12p} = 48$$

“Times” means multiplication.

- ∴ An equation is  $12p = 48$ .

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### EXAMPLE 2 Standardized Test Practice



Ten servers decorate 25 tables for a wedding. Each table is decorated as shown. Let  $c$  be the total number of white and purple candles. Which equation can be used to find  $c$ ?

- (A)  $c = 25 + (4 \times 6)$       (B)  $c = 25(4 + 6)$   
(C)  $c = 10(25 + 4 + 6)$       (D)  $c = 10(4 + 6)$

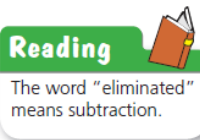
**Words** The number of candles is the number of tables times the number of candles on each table.

**Variable** Let  $c$  be the number of candles.

**Equation**  $c = 25 \times (4 + 6)$

∴ The correct answer is (B).

### EXAMPLE 3 Real-Life Application



After two rounds, 24 students are eliminated from a spelling bee. There are 96 students remaining. Write an equation you can use to find the number of students that started the spelling bee.

**Words** The number of students that started minus the number of students eliminated is the number of students remaining.

**Variable** Let  $s$  be the number of students that started.

**Equation**  $s - 24 = 96$

∴ An equation is  $s - 24 = 96$ .