Lesson 25: Finding Solutions to Make Equations True

Classwork

Opening Exercise

Identify a value for the variable that would make each equation or inequality into a true number sentence. Is this the only possible answer? State when the equation or inequality is true using equality and inequality symbols.

a. $3 + g = 15$

b. $30 > 2d$

c. $\frac{15}{f} < 5$

d. $42 \leq 50 - m$

Example 1

Each of the following numbers, if substituted for the variable, makes one of the equations below into a true number sentence. Match the number to that equation: $3, 6, 15, 16, 44$.

a. $n + 26 = 32$

b. $n - 12 = 32$

c. $17n = 51$

d. $4^2 = n$

e. $\frac{n}{3} = 5$

Lesson Summary

VARIABLE: A *variable* is a symbol (such as a letter) that represents a number (i.e., it is a placeholder for a number).

A variable is a placeholder for "a number" that does not "vary."

EXPRESSION: An *expression* is a numerical expression or a result of replacing some (or all) of the numbers in a numerical expression with variables.

EQUATION: An *equation* is a statement of equality between two expressions.

If A and B are two expressions in the variable x, then $A = B$ is an equation in the variable x.

Problem Set

Find the solution to each equation.

1. $4^3 = y$
2. $8a = 24$
3. $32 = g - 4$
4. $56 = j + 29$
5. $\frac{48}{r} = 12$
6. $k = 15 - 9$
7. $x \cdot \frac{1}{5} = 60$
8. $m + 3.45 = 12.8$
9. $a = 1^5$