

SOLVING EQUATIONS USING STUDYWORKS

GRADE LEVEL: 6th through 8th

TIME NEEDED: 50 MIN or 1 class period

PURPOSE:

- 1) This lesson should be an extension or an enrichment activity for the concept solving equations.
- 2) To expose the students to the StudyWorks! program and practice using the program for basic math.
- 3) StudyWorks! has three built-in tools to solve equations we will practice these tools.

OBJECTIVES:

- 1) Students to will learn to write and solve two-step equations.
- 2) Students will do their work using the StudyWorks! program.

MATERIALS:

A class set of computer with StudyWorks! Program.

The StudyWorks! worksheets that are accompanying this lesson plan.

CONCEPTS LEARNED AND MASTERED:

- 1) Students will learn to solve various equations using algebraic rules and step-by-step problem solving.
- 2) Students will learn how to solve these equations in StudyWorks! using the built-in tools.

TEACHING DIRECTIONS:

- 1) In order to use StudyWorks for this lesson the student must first know how to solve two-step equations.
- 2) Review with your students the steps taken to solve two-step equations.
- 3) Have students open their StudyWorks! program and open the worksheet on solving equations. You may use the worksheet that I have created on this lesson plan or create your own using the StudyWorks! program.
- 4) Explain what the solve for variable command, root function and solve block is and go over the examples on the worksheet.

EVALUATION ACTIVITY:

- 1) Have the students write the steps used to solve a two-step equation using the root function and solve block.
- 2) Have the students write the steps used to solve a two-step equation using the working backwards strategy.

Solving Equations

You will solve problems that contain more than one operation. To solve an equation with more than one operation, we use the work-backward strategy and undo each operation.

To solve equations using StudyWorks! we will use the **solve for variable command**.

Follow this example:

a. $4 - 2 \times b = -8$

has solution(s)

6

1. We will use the solve for variable command from the algebra menu
2. Click on the variable in the equation to select it.
3. Go to the algebra menu and choose solve for variable.
4. The program will give you the solutions.

Practice. Solve each equation using the solve for variable command.

1. $-4 \times y + 3 = 19$

2. $\frac{y}{3} + 6 = -45$

3. $\frac{n - 10}{5} = 2.5$

To solve an equation using StudyWorks! we will use the **root function**.

Follow this example:

b. Solve $2n - 5 = 21$

$$n = 5$$

$$2 \times n - 5 = 21$$

$$2 \times n - 5 - 21 = 21 - 21$$

$$2 \times n - 26 = 0 \quad \text{simplify}$$

$$\text{root}(2 \times n - 26, n) = 13$$

1. Type a guess value for your variable. The root function works best when the guess is close to the actual solution. You must use the := to define variable.
2. Then transform your equation so that all terms are on one side of the equation and zero is on the other side. In this case we are subtracting 21 from both sides.
3. Type root(your expression, the variable) then press equal.
4. The program will give you the solution to the equation.

Practice. Solve each equation using the root function.

1. $3 \times a + 5 = 9$

2. $7.5 \times r + 2 = -28$

To solve two-step equations using StudyWorks! we will use a **solve block**.
Follow this example:

c. Solve $-3n + 8 = -7$

$n = 4$

Given

$-3 \times n + 8 = -7$

Find(n) = 5

1. Type a guess value for your variable. It can be any number. You must use the := to define variable.

2. Type given then press enter.

3. Type your equation using the Boolean equal sign

4. Type find () and the variable and then equal

Practice. Solve each equation using a solve block.

1. $85 = 4d + 5$

2. $2r - 7 = 1$

3. $\frac{6 + c}{-13} = -3$