

Section 1.1 Guided Notebook

Section 1.1 Linear Equations in One Variable

Read the list of “THINGS TO KNOW” and review any unfamiliar concepts.

Section 1.1 Objective 1: Determine If a Given Value Is a Solution to an Equation

Define an **algebraic equation** and explain how it’s different from an **algebraic expression**.

Write the definition of a **Linear Equation in One Variable**.

What are **solutions** to an equation?

Example 1:

Study the solutions for Example 1 parts a and b on page 1.1-5 and record the answers below. Complete part c on your own and check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Determine if the given value is a solution to the equation.

a. $2x + 3 = 11$; $x = 4$ b. $3y + 8 = 5y - 4$; $y = 2$ c. $\frac{2}{3}w - \frac{1}{2} = \frac{1}{4}$; $w = \frac{3}{8}$

Read and summarize the CAUTION statement on page 1.1-6 in your own words.

Section 1.1 Objective 2: Solve Linear Equations in One Variable

What are **equivalent equations**?

Read and summarize the CAUTION statement on page 1.1-7 in your own words.

Section 1.1

Watch the concept animation on page 1.1-7 explaining the properties of equality.

1. Express the addition property of equality in algebraic form.
2. Express the multiplication property of equality in algebraic form.

Example 2:

Study the solution for Example 2 part a on page 1.1-8 and record the answer below. Complete part b on your own and check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Use the properties of equality to solve each equation.

a. $3x - 1 = 5$

b. $8 = \frac{1}{2}n + 3$

Example 4:

Complete Example 4 on page 1.1-10 on your own. Check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Solve: $5(x - 6) - 2x = 3 - (x + 1)$

Watch the Tip video on page 1.1-10. Why is it easier to solve $5(x - 4) = 10$ without simplifying first?

Example 6:

Complete Example 6 on page 1.1-12 on your own. Check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Solve: $\frac{1}{3}(1 - x) - \frac{x + 1}{2} = -2$

Example 8:

Complete Example 8 on page 1.1-14 on your own. Check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

$$\text{Solve: } 0.1(y - 2) + 0.03(y - 4) = 0.02(10)$$

Record the **Guidelines for Solving Linear Equations in One Variable**.

Step 1.

Step 2.

Step 3.

Step 4.

Step 5.

Step 6.

Read and summarize the CAUTION statement on page 1.1-15 in your own words.

Section 1.1 Objective 3: Identify Contradictions and Identities

Study the differences between an equation that is a **contradiction** and an equation that is an **identity**.

Example 9:

Study the solution for Example 9 part a on page 1.1-18 and record the answer below. Complete part b on your own and check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Use the properties of equality to determine if the equation is a contradiction or an identity. State the solution set.

a. $3x + 2(x - 4) = 5x + 7$

b. $3(x - 4) = x + 2(x - 6)$

Section 1.1

Section 1.1 Objective 4: Translate Sentences into Equations

Example 10:

Study the solutions for Example 10 parts a – d on page 1.1-20.

Section 1.1 Objective 5: Use Linear Equations to Solve Application Problems

Record the **Problem-Solving Strategy for Applications of Linear Equations**.

Step 1.

Step 2.

Step 3.

Step 4.

Step 5.

Step 6.

Example 14:

Complete Example 14 on page 1.1-27 on your own. Check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Marvel Studios' *Iron Man 2* is 2 minutes shorter than the original *Iron Man*. *Iron Man 3* is 4 minutes longer than *Iron Man*. If the total running time for the three movies is 380 minutes, find the running time of each movie. (*Source: imdb.com*)

Watch the concept animation on page 1.1-29 and finish the statements below:

If x represents an integer, how would you represent the next two *consecutive integers*?

If x represents an odd integer, how would you represent the next two *consecutive odd integers*?