Section 1.2 Guided Notebook

Section 1.2 Linear Inequalities in One Variable

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

Section 1.2 Objective 1: Determine If a Given Value Is a Solution to an Inequality

Example 1:
Study the solutions for Example 1 parts a and b on page 1.2-4. Record the answers below and watch the video for further explanation, if needed.

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

a. $3x + 4 < 8; \quad x = 2$

b. $n^2 + 5n \geq 4; \quad n = -6$

Section 1.2 Objective 2: Graph the Solution Set of an Inequality on a Number Line

Example 2:
Study the solutions for Example 2 parts a and b on pages 1.2-5 and 1.2-6 and record the answers below. Complete parts c – h on your own and check your answers by clicking on the link. If your answers are incorrect, watch the video to find your error.

Graph each solution set on a number line.

a. $\{x \mid x \geq 0\}$

b. $\{x \mid 1 < x \leq 7\}$

c. $\{x \mid x < 3\}$

d. $\{x \mid 0 < x < 4\}$

e. $\{x \mid x \neq -2\}$

f. $\{x \mid -1 \leq x \leq 5\}$

g. $\{x \mid -3 \leq x < 2\}$

h. $\{x \mid x \text{ is any real number}\}$

Section 1.2 Objective 3: Use Interval Notation to Express the Solution Set of an Inequality

In **interval notation,** what is the difference between a parenthesis and a square bracket?

Read and summarize the CAUTION statement on page 1.2-8 in your own words.

Study Table 2 on page 1.2-9 to review interval notation and set-builder notation.

Example 3:
Study the solutions for Example 3 parts a and b on page 1.2-10 and record the answers below. Complete parts c – f on your own and check your answers by clicking on the link. If your answers are incorrect, watch the video to find your error.

Write each solution set using interval notation.

a. $\{x|x<5\}$

b. $\{x|2\le x<10\}$

c. $\{x|x\ge -3\}$

d. $\{x|-6<x<0\}$

e. $\{x\,|\,-1\le x\le 5\}$

f. $\{x\,|\,x$ is any real number$\}$

Section 1.2 Objective 4: Solve Linear Inequalities in One Variable

Write down the **Properties of Inequalities** by name and in algebraic form.

1.

2.

Example 4:
Study the solution for Example 4 on page 1.2-14.

Watch the concept animation on page 1.2-14 to review an important fact about solving linear inequalities. Write this fact in your own words.

Example 6:
Complete Example 6 on page 1.2-16 on your own. Check your answer by clicking on the link. If your answer is incorrect, watch the video to find your error.

Solve the inequality $\frac{m}{2} - 5 + 2m > -\frac{m}{4} + \frac{1}{2}$ and write the solution set in interval notation.

Summarize the Tip found on page 1.2-17.

Example 7:
Study the solution for Example 7 part a on page 1.2-17 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.

Solve the following inequality. Write each solution set in interval notation.

a. $3 + 4(x-5) \le 7x - 3(x+8)$

b. $2(3-x) - 7 > 4(x-1) - 6x$

Read and summarize the CAUTION statement on page 1.2-18 in your own words.

Example 9:
Study the solution for Example 9 on page 1.2-20. Record the answer below and watch the video for further explanation, if needed.

Solve the inequality $-1.4 < 5 - 3.2x < 3.4$ and write its solution set in interval notation.

Read and summarize the CAUTION statement on page 1.2-21 in your own words.

Section 1.2 Objective 5: Use Linear Inequalities to Solve Application Problems

Write down the **Strategy for Solving Application Problems Involving Linear Inequalities**.

Step 1.

Step 2.

Step 3.

Step 4.

Step 5.

Step 6.

Example 10:
Study the solution for Example 10 on page 1.2-22 and record the answer below.

Example 12:
Study the solution for Example 12 on page 1.2-25. Break the solution into the six steps for Solving Application Problems Involving Linear Inequalities.