

LESSON **2.4** Assignment

Name _____ Date _____

We're Shipping Out!
Solving and Graphing Compound Inequalities



1. Taneisha's family has signed up for a new cell phone plan. Taneisha now has a limit on the number of texts she can send or receive each month. She can text no more than 300 times per month.
 - a. What is the least number of texts she can make in a month?

 - b. Write an inequality to represent the statement. Use n for the number of texts.

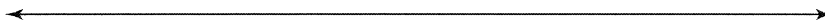
 - c. What is the greatest number of texts she can make in a month?

 - d. Write an inequality to represent the statement. Use n for the number of texts.

 - e. Write the statements from parts (b) and (d) as a compound inequality.

 - f. Write the compound inequality in compact form.

 - g. Graph the inequality. Describe your number line representation.



2. Taneisha's family's new cell phone plan costs \$55 per month plus \$0.20 for each text with a maximum of 300 texts per month. Let t represent the number of texts made during the month.
- a. Write an expression to represent the total monthly cost of the plan.

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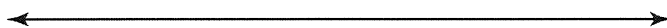
- b. Determine the minimum cost per month by using the least number of texts Taneisha can make in a month.
- c. Write an inequality to represent the statement. Use c for the monthly cost.
- d. Determine the maximum cost per month by using the greatest number of texts Taneisha can make in a month.
- e. Write an inequality to represent the statement. Use c for the monthly cost.
- f. Write the compound inequality that represents the cost of the plan.
- g. Write the compound inequality in compact form.
- h. Graph the inequality. Describe your number line representation.



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3. John owns a 50-acre apple orchard. Among his many concerns during the growing season is the amount of rainfall. Unfavorable conditions such as drought and flooding will affect tree production. John does not want rainfall amounts to be less than 10 inches or more than 50 inches.

a. Represent the undesirable rainfall amounts on the number line.



b. Write a compound inequality to represent the same information. Define your variable.

4. At John's apple orchard, the profit he will make depends on the number of bushels he grows and sells. He makes \$25 per bushel but must subtract \$300,000 for costs associated with growing the trees in order to calculate his profit.

a. Write an expression to represent the profit John will make. Let b represent the number of bushels he will produce and sell.

b. John must make at least \$80,000 to pay the bills, but he does not want to make more than \$250,000 because it will put him in a higher tax bracket. Write a compound inequality that represents the amount of profit John can make.

c. Solve the compound inequality. Show your work.

d. Graph the solution to the compound inequality. Describe the solution region in terms of the problem situation.

