Section 9.2

Solving Single Step Inequalities

Day 3

Learning Targets (day 3):

1. Modeling real-world situations with a linear inequality.

2. Determining if the solution to a real-world inequality should be represented with integers, whole numbers, or real numbers.

Example #1

A games store is offering games on sale for $12.50, including tax. Sean has set his spending limit at $80. How many games can Sean buy and stay within his limit?

a) Write an inequality to model the problem.

b) Solve the inequality and interpret the solution.

let n = # of games

Inequality: $12.50n \leq 80$

$\frac{12.50n}{12.50} \leq \frac{80}{12.50}$

$n \leq 6.4$

∴ Sean can purchase

at most
a maximum of
no more than

} 6 games

Example #2

Yvonne is planting trees as a summer job. She gets paid \$0.10 per tree planted. She wants to earn at least \$20/h. How many trees must she plant per hour in order to achieve her goal?

a) Write an inequality to model the number of trees Yvonne must plant to reach her goal.

b) Will the solution be a set of whole numbers or a set of integers? Explain.

c) Solve the inequality and interpret the solution.

a) Let n = the number of trees

$$0.1n \geq 20$$

b) Whole numbers → # of trees can't be negative

$$\frac{0.1n}{0.1} \geq \frac{20}{0.1}$$

$$n \geq 200$$

$\therefore$ Yvonne must plant

at least
a minimum of
no less than

} 200 plants per hour to achieve her goal.

Example #3

Chris has a weekend business building doghouses. Each doghouse takes 4 h to build and is sold for $115. Chris wants to earn at least $1000 per month. He wants to work no more than 50 h on his business per month.

a) Write two inequalities to model the situation.

b) Solve each inequality.

c) What possible numbers of doghouses can he build each month and stay within his guidelines?

a) let n = # of doghouses built

Inequality #1: $4n \leq 50$
(time limit)

Inequality #2: $115n \geq 1000$
($ earned)

b) $\frac{4n}{4} \leq \frac{50}{4}$

$n \leq 12.5$

$\frac{115n}{115} \geq \frac{1000}{115}$

$n \geq 8.69\ldots$

∴ To stay within his guidelines, Chris can build 9, 10, 11 or 12 doghouses

from 9 to 12

Check your understanding:

Pg. 357-359 #14, 15, 18, 19, 21, 27