Connexions module: m19163

# INEQUALITIES AND ABSOLUTE VALUE HOMEWORK – INEQUALITY WORD PROBLEMS\*

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#### Abstract

This module provides word problems which develop concepts related to inequalities.

#### Exercise 1

Jacob is giving a party. 20 people showed up, but he only ordered 4 pizzas! Fortunately, Jacob hasn't  $\mathbf{cut}$  the pizzas yet. He is going to cut each pizza into n slices, and he needs to make sure there are enough slices for everyone at the party to get at least one. Write an inequality or set that describes what n has to be.

#### Exercise 2

Whitney wants to drive to Seattle. She needs 100 gallons of gas to make the trip, but she has only \$80 allocated for gas. Her strategy is to wait until the price of gas is low enough that she can make the trip. Write an inequality or set that describes what the price of gas **has to be** for Whitney to be able to reach Seattle. Be sure to clearly define your variable(s)!

#### Exercise 3

Your evil math teacher, who shall go nameless, is only giving two tests for the whole grading period. They count equally—your grade will be the average of the two. Your first test was a 90. Write an inequality or set that describes what your **second** test grade has to be, in order for you to bring home an A on your report card. ("A" means 93 or above.) Be sure to clearly define your variable(s)!

#### Exercise 4

Laura L is going to build a movie theater with n screens. At each screen, there will be 200 seats for the audience to watch that movie. (So maximum capacity is 200 audience members per screen.) In addition to audience members, there are 20 employees on the premises at any given time (selling tickets and popcorn and so on). According to code (which I am making up), she must have at least one bathroom for each 100 people in the building. (Of course, it's fine to build more bathrooms than that, if she wants!)

**a.** Write a function (this will be an equation) relating the number of screens (n) to the total number of people who can possibly be in the building (p). Which one is dependent? Which one is independent?

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Connexions module: m19163 2

**b.** Write an **inequality** relating the total number of people who can possibly be in the building (p) to the number of bathrooms (b).

**c.** Now write a **composite inequality** (I just made that word up) that tells Laura: if you build this many screens, here is how many bathrooms you need.

### Exercise 5

Make up your own word problem for which the solution is an inequality, and solve it. The topic should be breakfast.