Foundations 11 Name:_____

Balancing Two Part-Time Jobs

Marine has two part-time jobs. She earns minimum wage working at the information desk in a hospital and $4 above minimum wage helping with her mother's house-cleaning business. Marnie works in whole-hour increments only. She enjoys the work at the hospital more than house cleaning and does not work more than 15 h a week, since she often has a lot of homework and she plays on her school's volleyball team.

How many hours can Marnie work for her Mom and at the hospital and earn at least $160 a week?

A. Predict the solution to the problem. Explain your prediction.

B. If Marnie works 5 h at the hospital, how many hours will she work for her mother? Will she earn at least $160? Explain.

C. If Marnie works 10 h at the hospital, how many hours will she work for her mother? Will she earn at least $160? Explain.

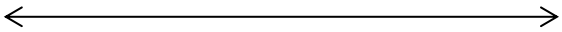
D. What type of linear inequality (less than, greater than, less than or equal to, or greater than or equal to) is being described in the problem? Justify your decision.

E. Use a variable to represent the number of hours that Marnie works at the hospital. Use the same variable to create an expression for the number of hours that she works for her mother.

F. To what set of numbers – natural, whole, integer, rational, or real – does the variable you defined in part E belong to? Justify your decision.

G. Write a linear inequality to represent Marnie's situation. Explain why your linear inequality makes sense.

H. Solve the linear inequality, and represent the solution on a number line.



I. Describe how your prediction in part A compares with your solution in part H.

What do you think?

Decide whether you agree or disagree with each statement. Explain your decision.

1. The solution to a linear inequality can be modeled graphically on a number line.

2. A linear inequality can be modeled using a solid line or dashed line.

3. The same algebraic methods that are used to solve a linear equation can be used to solve a linear inequality.

4. A linear equation has been graphed below. Its solutions can only be represented by points with integer coordinates, such as (1,5) and (-1,1)