Problem-Based Task 2.3.2: Skate Constraints Revisited

A sporting goods company produces figure skates and hockey skates. One group of workers makes the blades for both types of skates. Another group makes the boots for both types of skates.

- It takes 2 hours to make the blade of a figure skate. It takes 3 hours to make the blade of a hockey skate. There is a maximum of 40 hours per week in which the blades can be made for both types of skates.
- It takes 3 hours to make the boot of a figure skate. It takes 1 hour to make the boot for a hockey skate. There is a maximum of 20 hours per week in which boots can be made for both types of skates.

What are ALL possible combinations of the number of figure skates and hockey skates that can be produced given the constraints of this situation?

Problem-Based Task 2.3.2: Skate Constraints Revisited

Coaching

a. What is the inequality that represents the time it takes to make the blades of the two different types of skates?

b. What is the inequality that represents the amount of time it takes to make the boots of the two different skates?

c. What other two constraints are necessary?

d. What is the system of inequalities that represents this situation?

e. What is the graph of the first inequality in the system?

f. What is the graph of the second inequality? Graph it on the same coordinate plane as the first inequality.

g. What are the graphs of the third and fourth inequalities? Graph these on the same coordinate plane you used for parts e and f.

h. What is the graph of all possible combinations of figure skates and hockey skates that can be produced given the constraints of this situation?