

Section 8.8

Solutions and Hints

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for the book:

Precalculus, Mathematics for Calculus 4th Edition
by James Stewart, Lothar Redlin and Saleem Watson.

40. A man and his daughter manufacture unfinished tables and chairs. Each table requires 3 hours of sawing and 1 hour of assembly. Each chair requires 2 hours of sawing and 2 hours of assembly. The two of them can put in up to 12 hours of sawing and 8 hours of assembly work per day. Find a system of inequalities that describes all possible combinations of tables and chairs that they can make per day. Graph the solution set.

	Hours Sawing	Hours Assembly	Total
Table	3	1	4
Chair	2	2	4
Maximum Hours	≤ 12	≤ 8	

Let t = number tables made per day

Let c = number of chairs made per day

Then $3t + 2c$ = number of hours sawing per day ≤ 12

and $t + 2c$ = number of hours spent in assembly per day ≤ 8

So the system of inequalities is:

$$3t + 2c \leq 12$$

$$t + 2c \leq 8$$

The graphing is left up to you and your calculator.