* Giapetto’s Woodcarving, Inc., manufactures two types of wooden toys: soldiers and trains.
* A soldier sells for $27 and uses $10 worth of raw materials.
* Each soldier that is manufactured increases Giapetto’s variable labor and overhead costs by $14.
* A train sells for $21 and uses $9 worth of raw materials.
* Each train built increases Giapetto’s variable labor and overhead costs by $10.
* The manufacture of wooden soldiers and trains requires two types of skilled labor: carpentry and finishing.
* A soldier requires 2 hours of finishing labor and 1 hour of carpentry labor.
* A train requires 1 hour of finishing labor and 1 hour of carpentry labor.
* Each week, Giapetto can obtain all the needed raw material but only 100 finishing hours and 80 carpentry hours.
* Demand for trains is unlimited, but at most 40 soldiers are bought each week.
* Giapetto wants to maximize weekly profit (revenues-costs).

Mathematical Model

subject to

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| --- | --- | --- |
|  |  | (1) |
|  |  | (2) |