Giapetto's Woodcarving Problem

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```
## Success: the objective function is 180
```

```
## [1] 20 60
```

1 Giapetto's Woodcarving, Inc. Example

Gaipetto's Woodcarving, Inc. manufatures two types of wooden toys: soliders and trains.

A solider sells for $27 and uses $10 worth of raw materials. Each solider 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 build increases Giapetto's variable labor and overhead costs by $10.

The manufacturing of wooden soliders and trains requires two types of skilled labor. A solider requires 2 hours of finishing labor and 1 hour of carprentry labor. A train requires 1 hour of finishing labor and 1 hour of carpentry labor. Each week, Giapetto can obtain all the needed raw but only 100 finishing hours and 80 carpentry hours.

Demand for trains is unlimited, but at most 40 soliders are bought each week. Giapetto wants to maximize weekly profit (revenues - costs).

Formulate a mathematical model of Giapetto's situation that can be used to maximize Giapetto's weekly profit.

```
## Success: the objective function is 430000
```

```
## [1] 1.4 3.6
```

```
## Success: the objective function is 5e+05
```

```
## [1] 2 4
```