The diet problem

Two available brands of cereal:

Krunchies, costing 3.8 cents per ounce

Crispies, costing 6.2 cents per ounce

Breakfast nutrition requirements:

Thiamine: at least 1 mg

Niacin: at least 5 mg

Energy: at least 900 calories, at most 1500

Nutritional info for Krunchies and Crispies (per ounce):

	Thiamine	Niacin	Energy
Krunchies:	.1	1	110
Crispies:	.25	.25	120

The problem:

Produce a low-cost breakfast that satisfies nutritional requirements

The Linear Programming formulation

$K =$ number of ounces of Krunchies

$C =$ number of ounces of Crispies

Minimize	$3.8K + 6.2C$	(total cost)
Subject to	$.1K + .25C \geq 1$	(thiamine need)
	$K + .25C \geq 5$	(niacin need)
	$110K + 120C \geq 900$	(energy need)
	$110K + 120C \leq 1500$	(energy restriction)
	$K \geq 0,\ C \geq 0$	

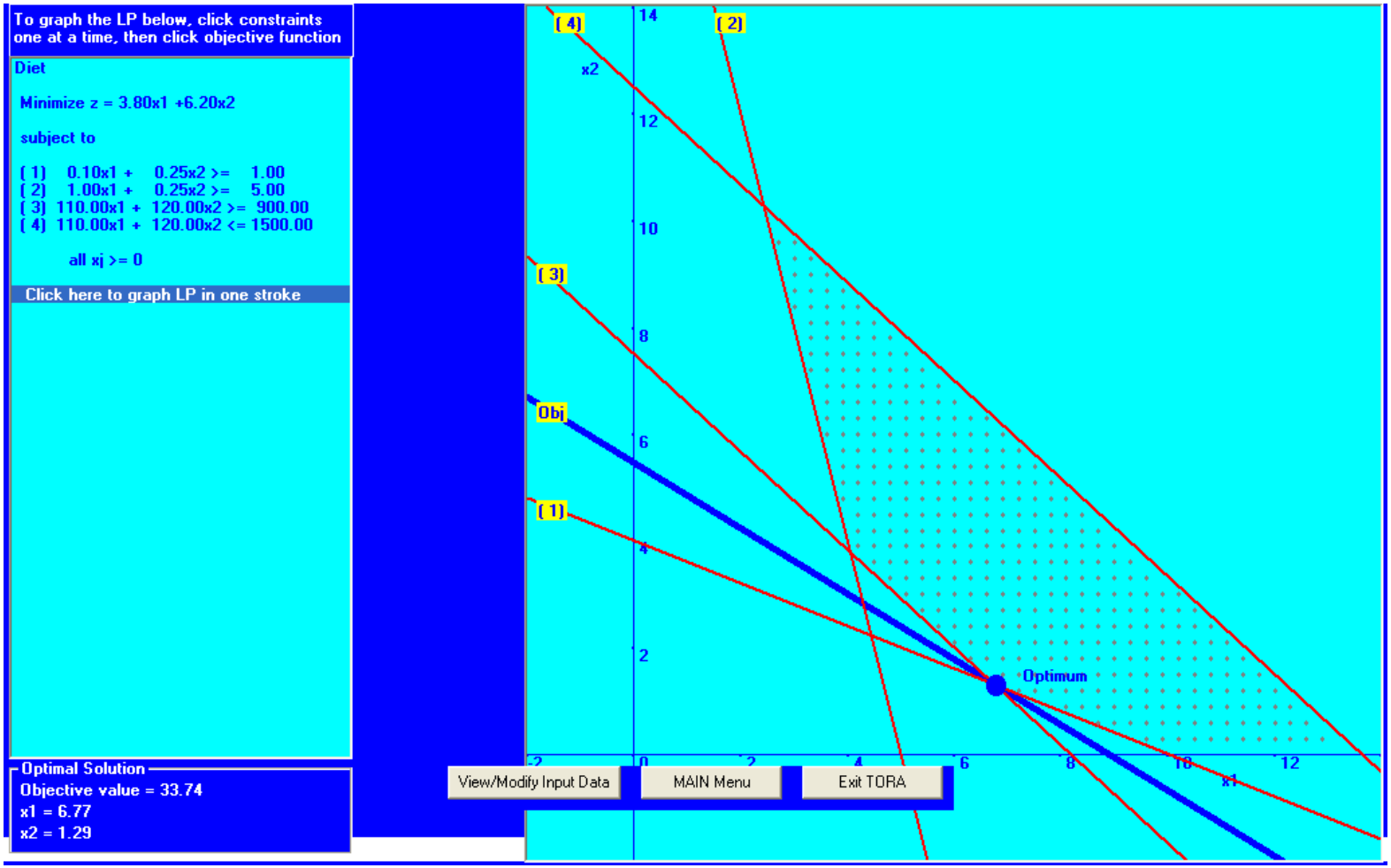
Possible solutions:

$K = 10,\ C = 0$ (all Krunchies); cost 38 cents

$K = 0,\ C =?$ (all Crispies); no feasible solution of this form

$K = C = 4$ (equal mix); cost 40 cents

Solution via TORA



$K = 6.77,\ C = 1.29$; cost 33.74 cents