Home Electrics Co

Home Electrics Co manufactures electrical appliances for domestic use. It is made up of two divisions.

Small Appliances division

Two of the products manufactured by the Small Appliances division are the Blender (Product B) and the Toaster (Product T). The standard cost cards per unit for each of the products is as follows:

	B	T
	$	$
Selling price	80	120
Direct materials ($5 per kg)	10	15
Direct labour ($7 per hour)	21	35
Variable overheads	12	18
Fixed overheads	8	10
Profit	29	42

In the first quarter of the year the supply of materials was restricted to 2,000 kg per month. This was due to a global shortage.

It is now April and it has been identified that material will continue to be limited to 2,000 kg per month but also labour hours will be restricted to 3,200 hours per month. The management accountant has supplied formulas for the production constraints as follows:

Materials $2B + 3T = 2000$
Labour $3B + 5T = 3200$

Large Appliances division

This division also manufactures two products; a Freezer (Product F) which earns a contribution of $150 per unit and a Dishwasher (Product D) which earns a contribution of $200 per unit. Both products use the same resources, several of which are in short supply.

In April only 4,000 labour hours, 2,500 kg of material and 3,200 machine hours will be available. The management accountant has applied linear programming and defined the following constraints:

Materials	$4F + 6D = 2500$
Labour	$10F + 8D = 4000$
Machine time	$5F + 10D = 3200$
Demand for D	250

Labour and machine time have been identified as the binding constraints and an optimum production plan of 240 units of F and 200 units of D has been calculated.

Which of the following statements about the linear programming method in the Large Appliances division are true?

(1) Product D has a slack value

(2) Contribution of $76,000 will be earned from the optimum production plan

(3) Labour and machine time intersect at the optimum point if shown on a graph