5. A company makes two products and has available two workstations on which these products are produced. The time (in hours) per unit produced varies from workstation to workstation (due to different manning levels) as shown below:

		Workstation	
		1	2
Product	1	0.2	0.5
	2	0.1	0.4

Producing one unit of product 1 requires 0.2 hours on workstation 1 followed by 0.5 hours on workstation 2. Producing one unit of product 2 requires 0.1 hours on workstation 1 followed by 0.4 hours on workstation 2.

The profit (£) contribution (contribution to fixed costs) per unit of product produced is £5 for product 1 and £6 for product 2.

Technological constraints mean that the ratio of the number of units of product 1 produced to the number of units of product 2 produced must lie between 0.3 and 0.5.

In the next week there are 40 working hours available at each workstation.

(a) Formulate, and solve, this problem as a linear program.

(b) What assumptions have you made in arriving at your solution?

(c) If one extra hour could be made available at a workstation which workstation would you allocate it to and what would be the associated increase in total profit contribution?