

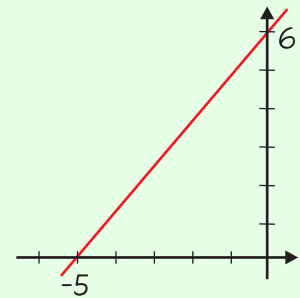
LINEAR PROGRAMMING (Q 11, PAPER 2)

2009

11 (a) The diagram shows the line $6x - 5y + 30 = 0$.

(i) Copy the diagram into your answer book and on it show the set of points which satisfy the inequality $6x - 5y + 30 \leq 0$.

(ii) Using the same diagram, illustrate the inequality $y \geq 2$.



(b) A person is setting up a new taxi firm. The firm will use medium-sized cars and large cars.

Each medium-sized car costs €20 000 and each large car costs €30 000.

The person has at most €300 000 to purchase the cars.

At any given time there are at most 13 drivers available to operate the taxis.

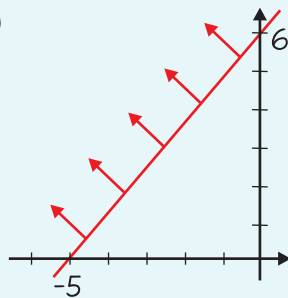
(i) Taking x as the number of medium-sized cars and y as the number of large cars, write down two inequalities in x and y and illustrate these inequalities on graph paper.

(ii) The estimate of the monthly profit on a medium-sized car is €800 and on a large car is €900. How many of each type of car should the person buy to maximise profit?

(iii) On your graph, show the region where the monthly profit is at most €7200.

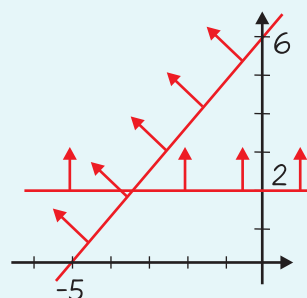
ANSWERS

11 (a) (i)



(b) (i) $2x + 3y \leq 30$, $x + y \leq 13$

(ii)



(ii) $x = 9$, $y = 4$