horizontal line $y = 5000$, and on or above the line $x + y = 6000$.

e) Let C represent the total cost. Let x represent the cost per bag of almonds. Let y represent the cost per bag of walnuts.
$C = 11.19x + 13.1y$

f) 3000 bags of walnuts and 3000 bags of almonds at \$72 870.

10. e.g., question 4: minimum cost: 15 letter-size signs; \$147.00; question 5: maximum revenue: 20 000 lower and 30 000 upper; \$4 800 000

11. 137 economy seats and 8 business seats;
maximum revenue: \$38 485

12. 1500 min or 25 h; 11 250 min or 187 h 30 min

13. 12 h at \$8.75/h and 20 h at \$9.00/h; \$285

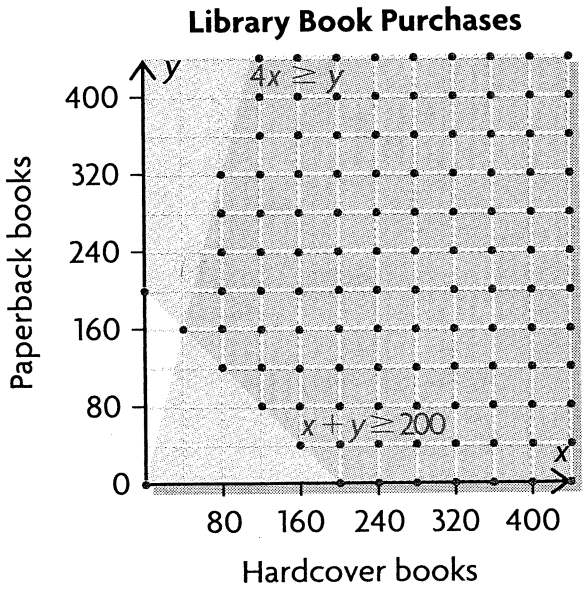
14. 96 small earrings and 24 large earrings; \$112 800

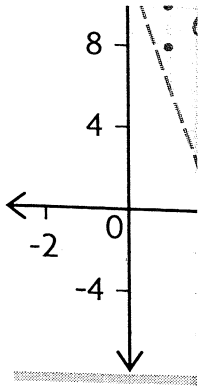
15. 1600 bundles of asphalt shingles and 200 bundles of cedar shakes

16. e.g., What is the graph of the system of linear inequalities? What is the feasible region? What are the vertices of the feasible region? How does the value of the objective function at each vertex compare?

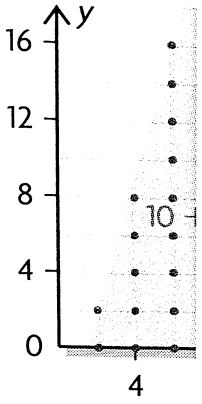
17. e.g., *Problem*: A library is buying both hardcover and paperback books. It plans to purchase at most four times as many paperbacks as hardcover books. Altogether the plan is to purchase no fewer than 200 books. Hardcover books average \$35.75 in cost while paperbacks average \$12.20. How can the library minimize its costs?
Solution: Let x represent the number of hardcover books. Let y represent the number of paperback books. Let C represent the total cost of the books.
Objective function to minimize: $C = 35.75x + 12.2y$
Constraints and restrictions:
$\{(x, y) \mid x + y \geq 200, x \in W, y \in W\}$
$\{(x, y) \mid 4x \geq y, x \in W, y \in W\}$

The library should purchase 40 hardcover books and 160 paperback books, for a total cost of \$3382.00.

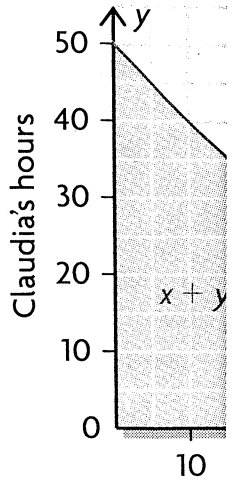




b)



2. **a)** Let x represen
the number of
Domain: $x \geq$
Range: $y \geq 0$,
$x + y \leq 50$



b) e.g., (28, 2), (
inequality