

Form 4 Chapter 6
Linear Inequalities in Two Variables
Fully-Worked Solutions

UPSKILL 6.1

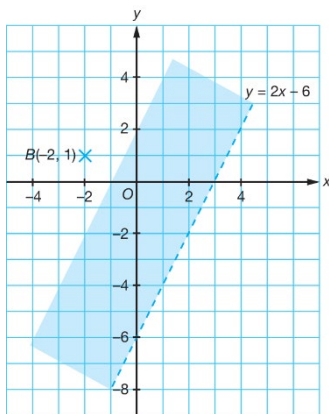
1 $6x + 3y \leq 54 \Rightarrow 2x + y \leq 18$

2 $35x + 30y \leq 390 \Rightarrow 7x + 6y \leq 78$

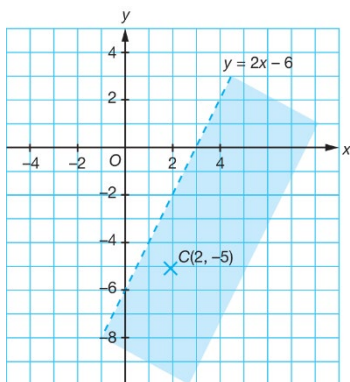
3 (a), (b), (c)

Point	y	$2x - 6$	Conclusion
A(2, -2)	-2	-2	$y = 2x - 6$
B(-2, 1)	2	-12	$y > 2x - 6$
C(2, -5)	-5	-2	$y < 2x - 6$

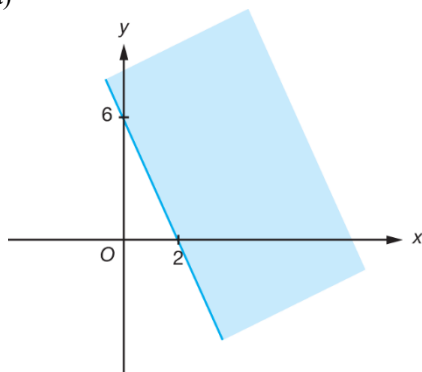
(d) (i) $y > 2x - 6$



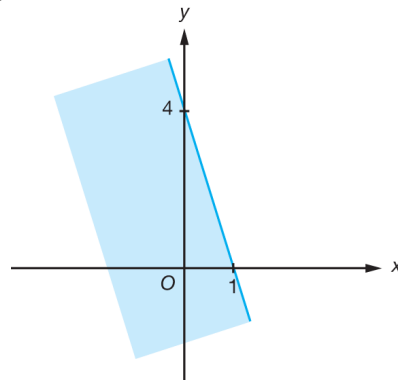
(ii) $y < 2x - 6$



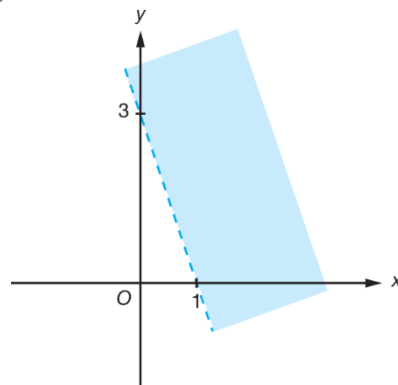
4 (a)



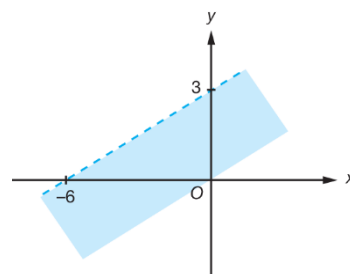
(b)



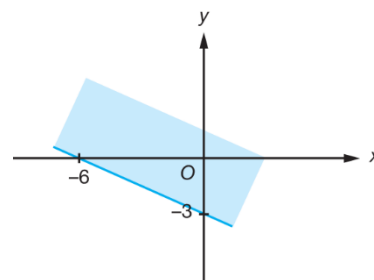
(c)



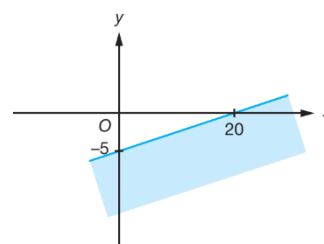
(d)

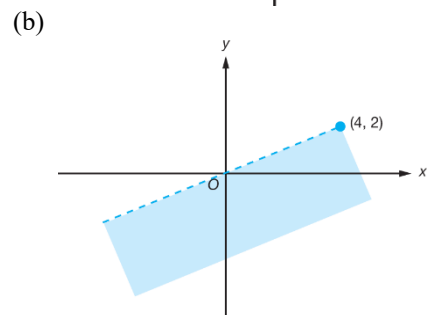
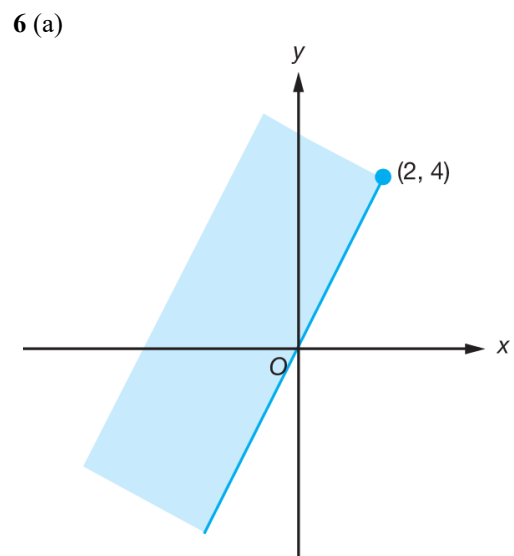
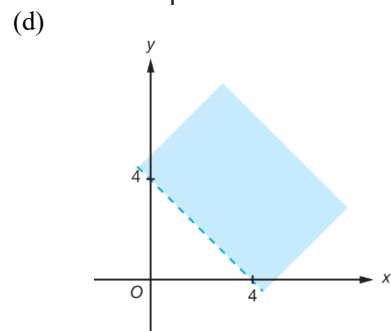
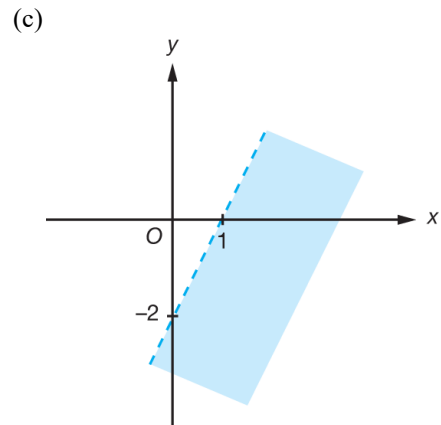
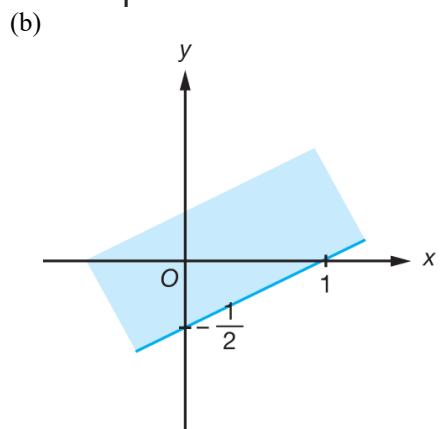
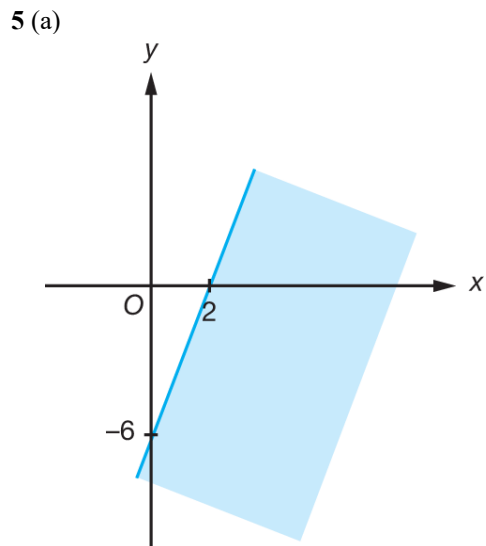
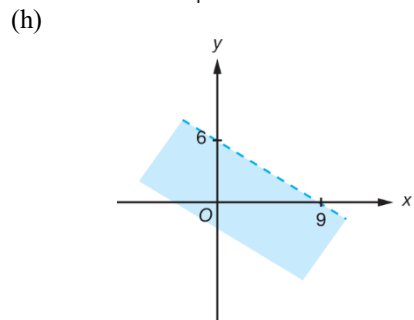
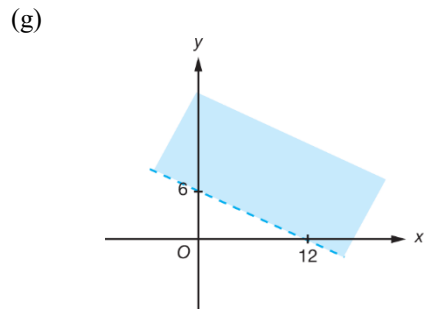


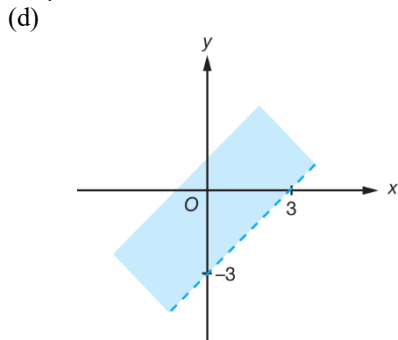
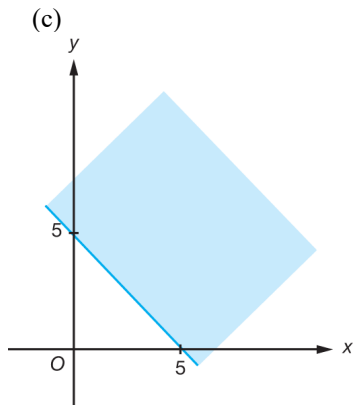
(e)



(f)







UPSKILL 6.2

1 $1500x + 900y \leq 45000 \Rightarrow 5x + 3y \leq 150,$

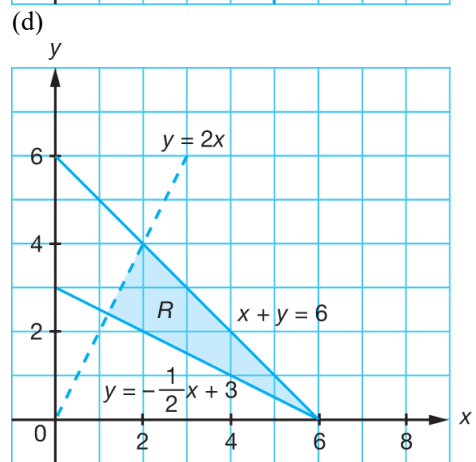
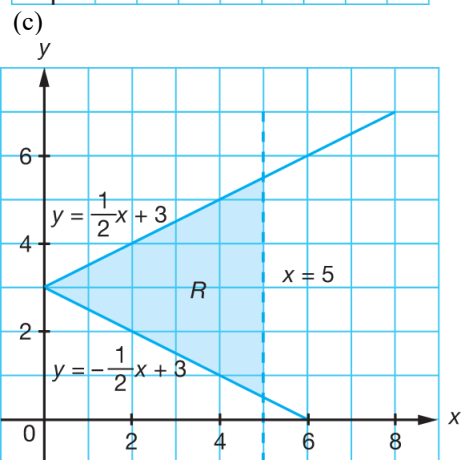
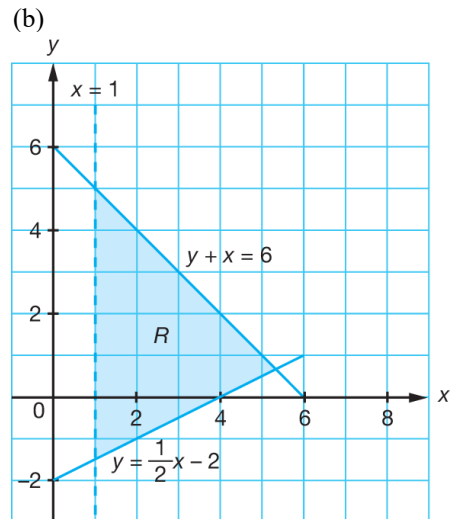
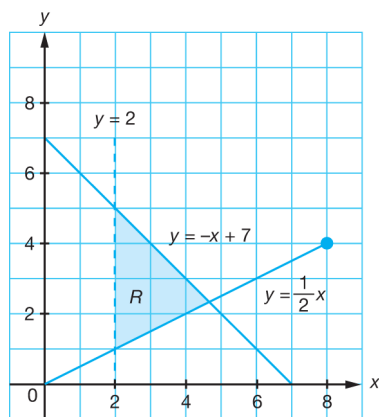
$y - x \leq 10, y \geq \frac{1}{10}x$

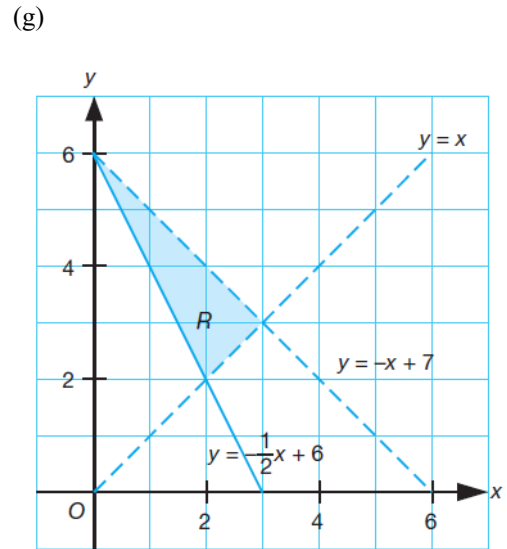
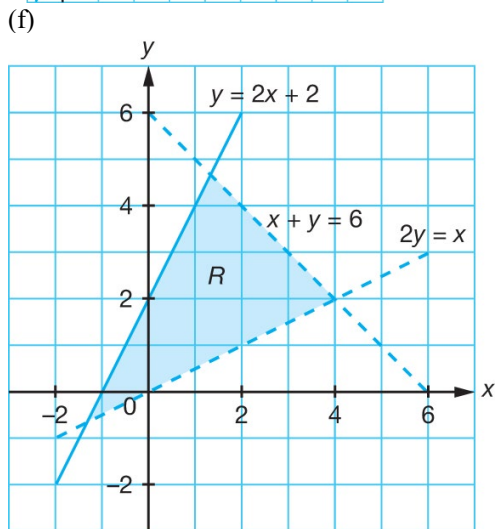
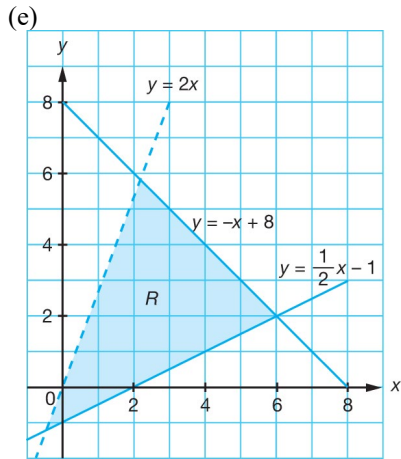
2 $x \geq 10, y \geq 2x,$

$8x + 12y \leq 12 \times 60 \Rightarrow 2x + 3y \leq 180$

3 $x + y \leq 90, x \leq 2y, y - x \leq 10$

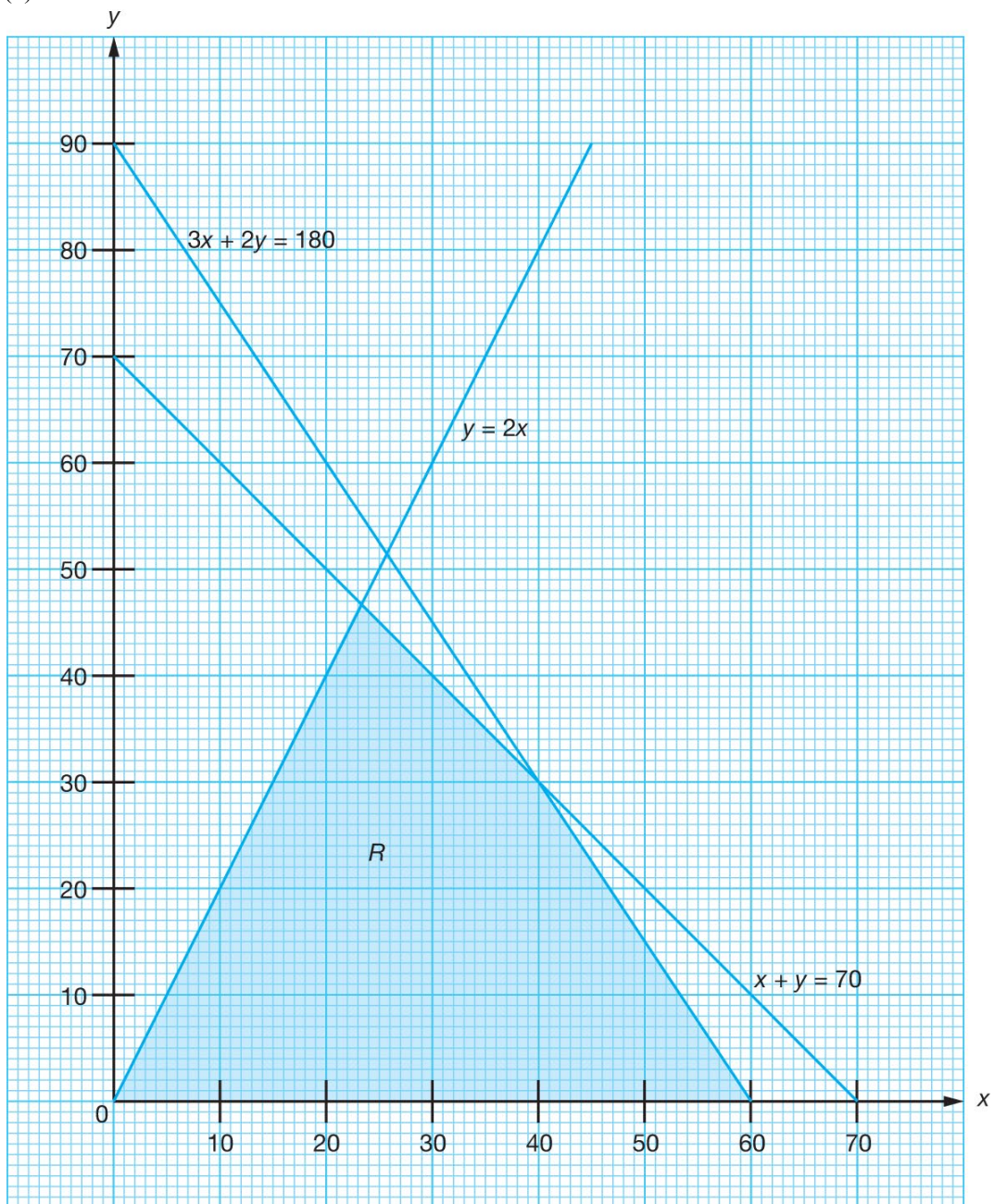
4 (a)





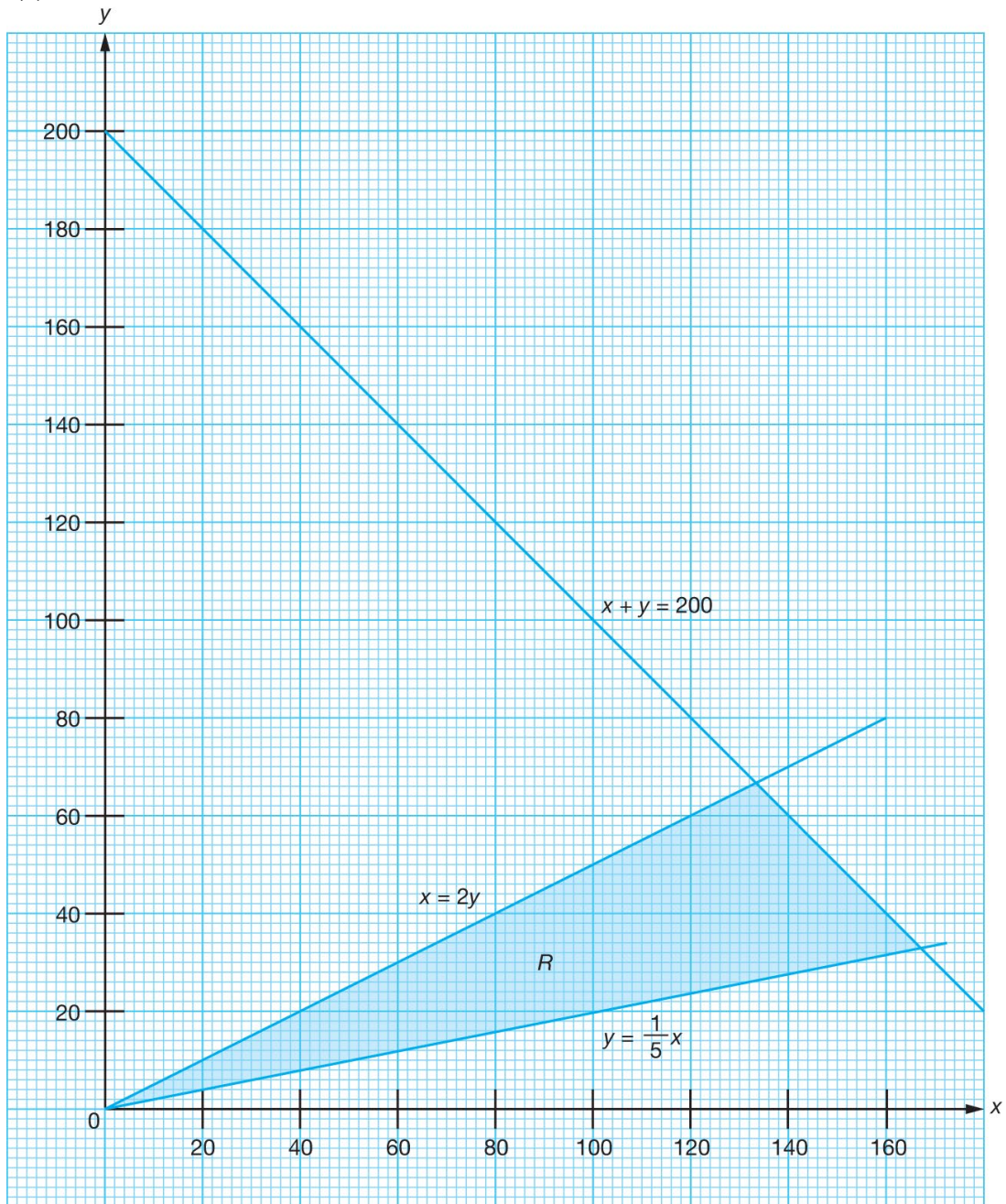
5 (a) $x + y \leq 70$, $y \leq 2x$, $90x + 60y \leq 5400 \Rightarrow 3x + 2y \leq 180$

(b)



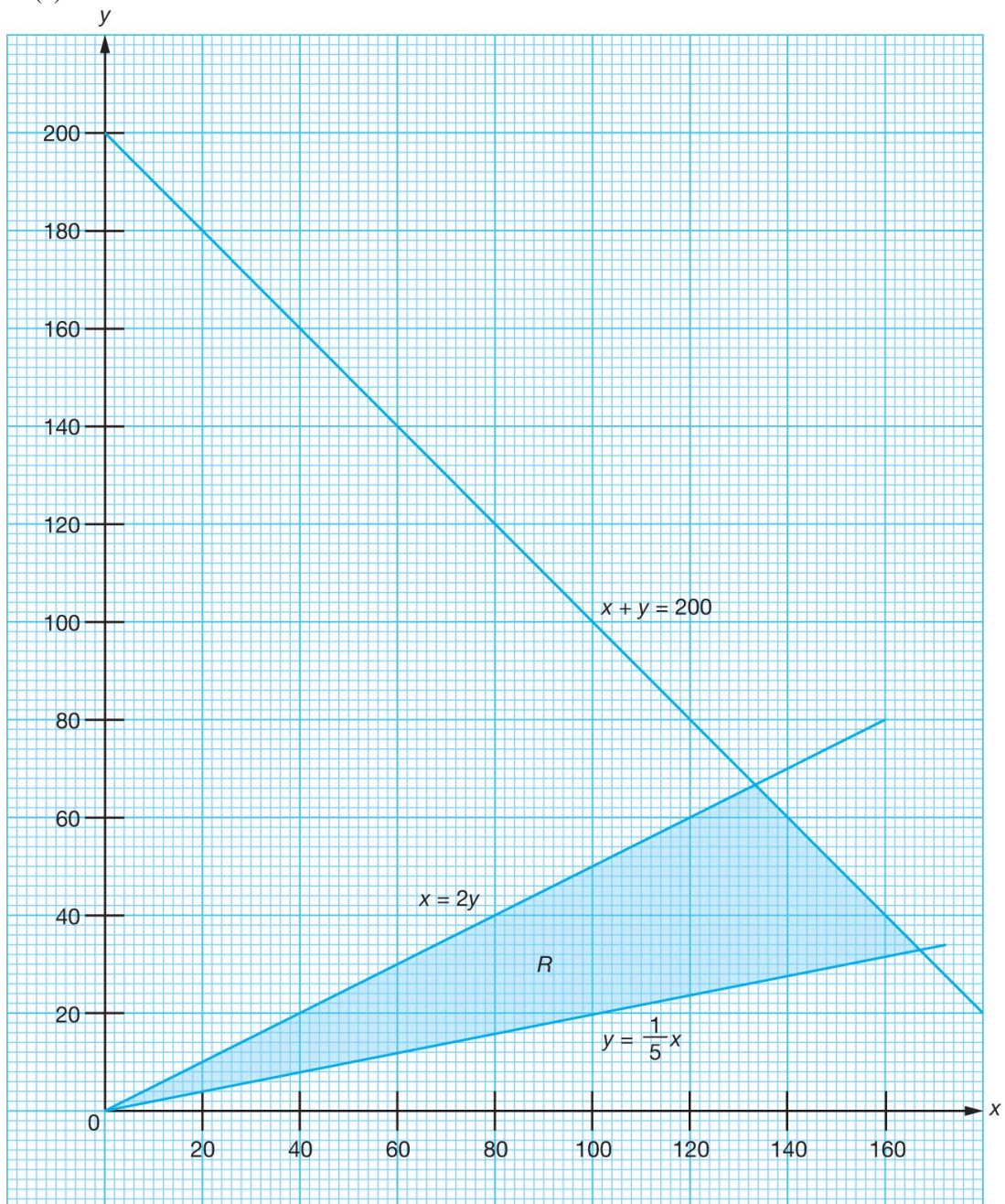
6 (a) $x \geq 2y$, $x + y \leq 200$, $y \geq \frac{1}{5}x$

(b)



7 (a) $x + y \geq 10$, $y \leq 3x$, $150x + 90y \leq 1\,800 \Rightarrow 5x + 3y \leq 60$

(b)



Summative Practice 6

Multiple-Choice Questions

1 The inequality that does not represent the shaded region is $3x < y$.

Answer: B

2 The inequality that does not represent the shaded region is $y \leq 2x + 3$.

Answer: B

3 The inequality that does not represent the shaded region is $3x < y$

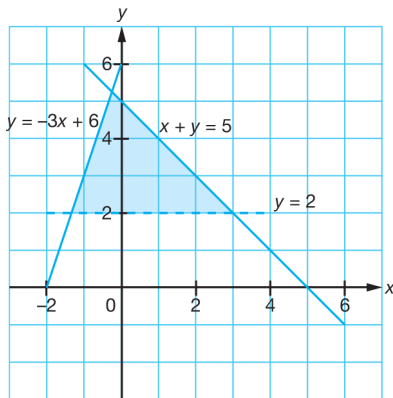
Answer: A

4 The inequality that does not represent the shaded region is $2x \leq y$

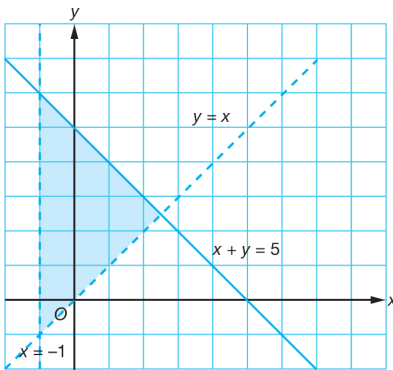
Answer: C

Structured Questions

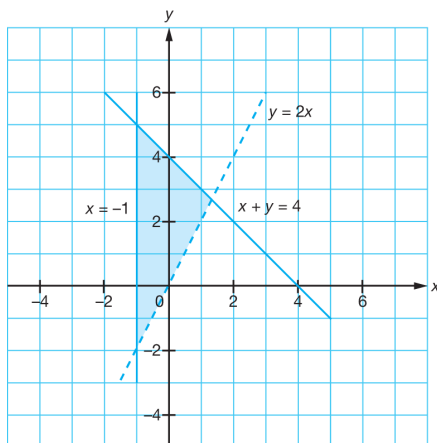
1



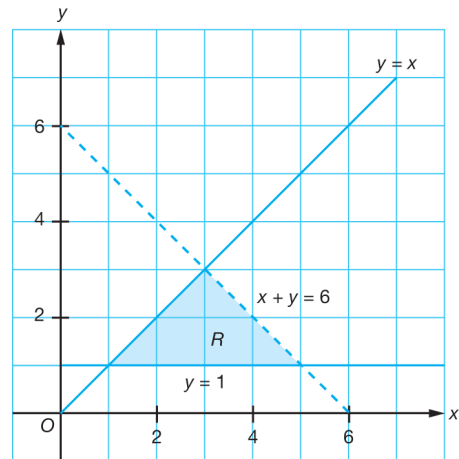
2



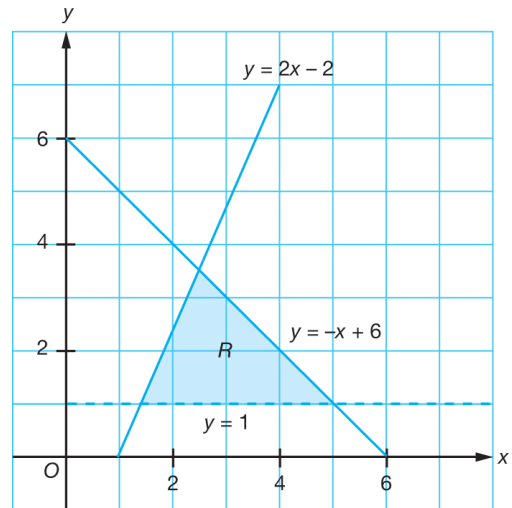
3



4 (a)



(b)

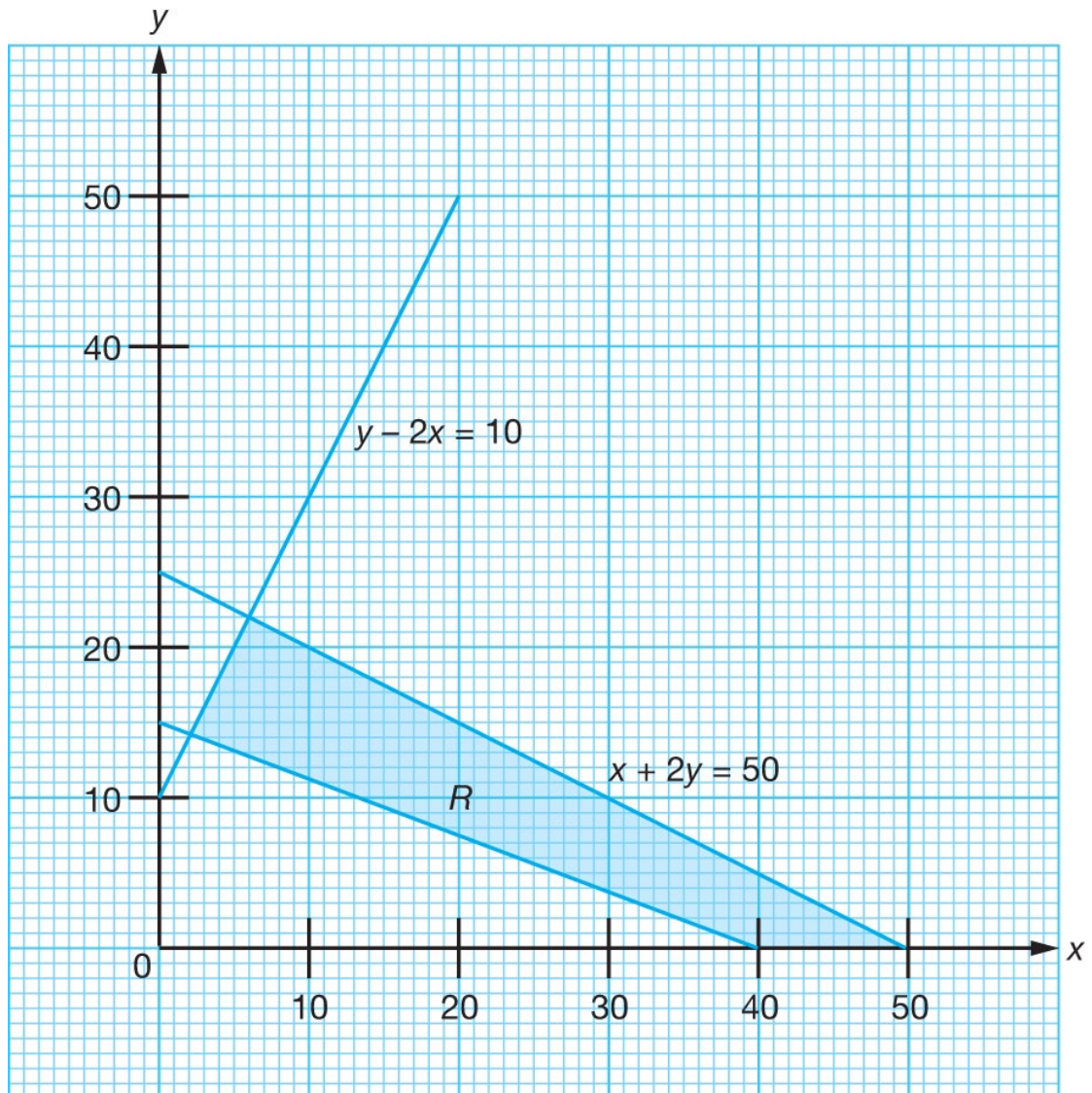


5 (a) $x > 1$, $y \geq \frac{1}{2}x$, $x + y \leq 5$

(b) $y < x$, $x + y \leq 6$, $y \leq -\frac{1}{2}x + 4$

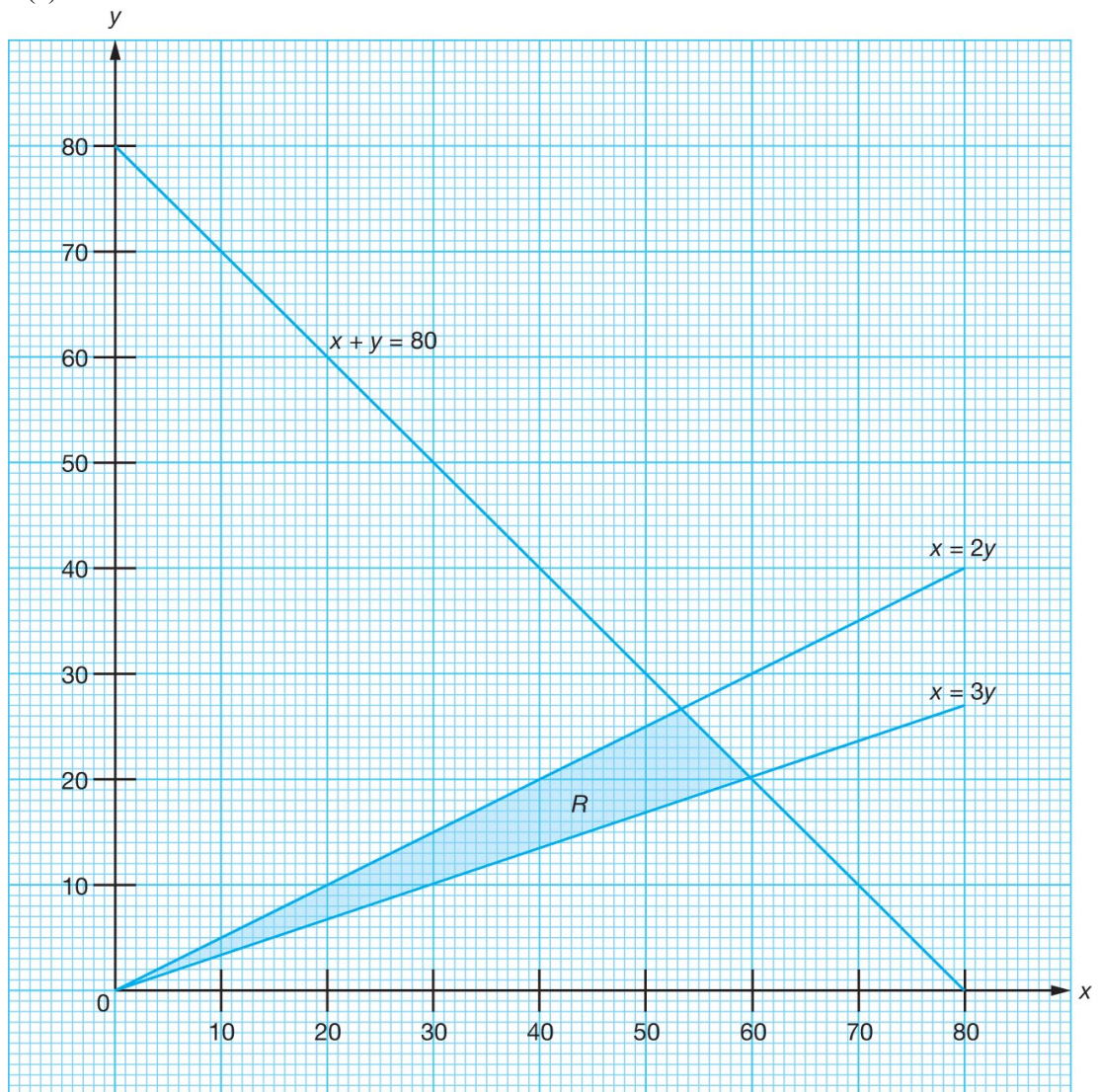
6 (a) $10x + 20y \leq 500 \Rightarrow x + 2y \leq 50$, $15x + 40y \geq 600 \Rightarrow 3x + 8y \geq 120$, $y - 2x \leq 10$

(b)



7 (a) $x + y \leq 80$, $x \leq 3y$, $x \geq 2y$

(b)



8 (a) $70x + 40y \leq 4\ 200 \Rightarrow 7x + 4y \leq 420$, $20x + 80y \geq 1\ 600 \Rightarrow x + 4y \geq 80$, $y \geq \frac{1}{2}x$

(b)

