

Graphical Inequalities 2

Videos 181, 182 on www.corbettmaths.com

Examples



Click here



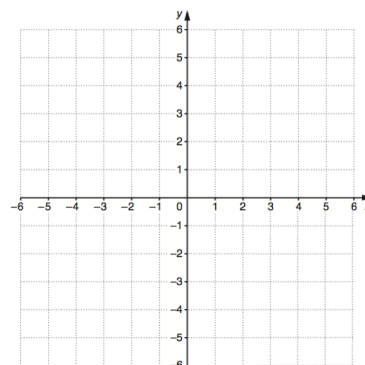
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Workout

*There are templates for the questions workout 1, 2, 4 and apply 4, 5 at the end of exercise

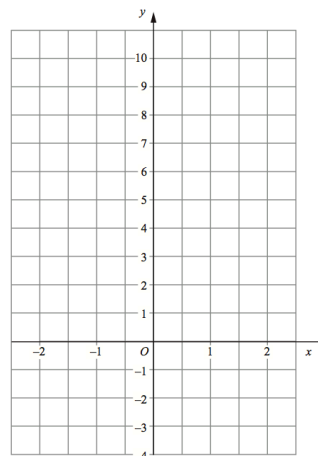
Question 1: On copies of the grid below, clearly indicate the region that satisfies each inequality.

- (a) $y < x + 1$ (b) $y \leq 2x + 2$ (c) $y > 3x - 1$
 (d) $y \geq x + 3$ (e) $y > 2x$ (f) $y \leq 4x$
 (g) $y < -2x + 1$ (h) $y \geq \frac{1}{2}x + 2$ (i) $x + y < 4$

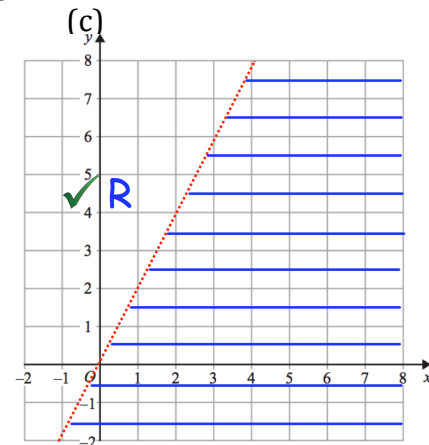
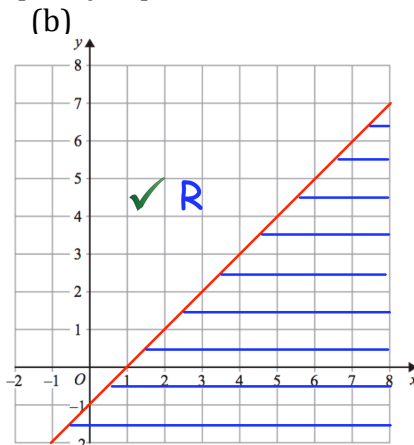
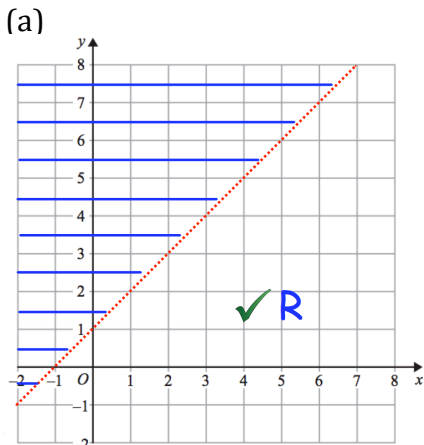


Question 2: On copies of the grid below, clearly indicate the region that satisfies each inequality.

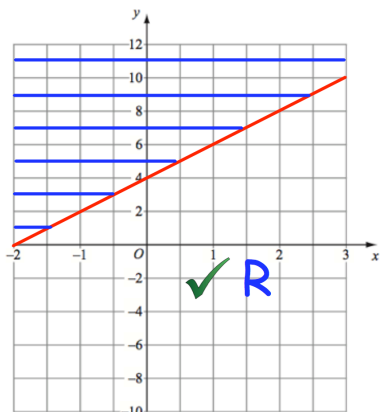
- (a) $y > 3x + 4$ (b) $y \geq 5x - 1$
 (c) $y \leq 4x + 1$ (d) $y < -2x + 5$
 (e) $x + y < 2$ (f) $y > -x - 2$
 (g) $y \geq 5 - 2x$ (h) $x + y \geq 7$
 (i) $3x + y > 3$ (j) $5x + 2y > 4$



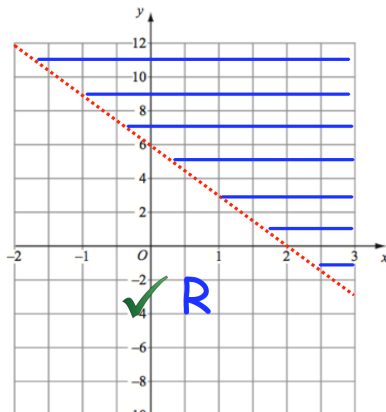
Question 3: Write down the inequality represented in each diagram below.



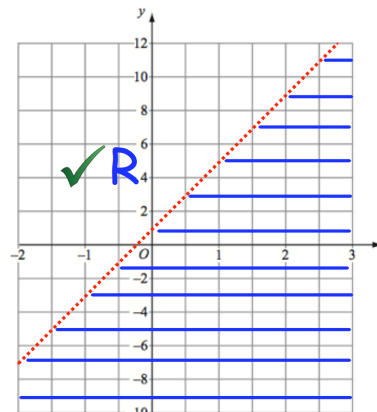
(d)



(e)

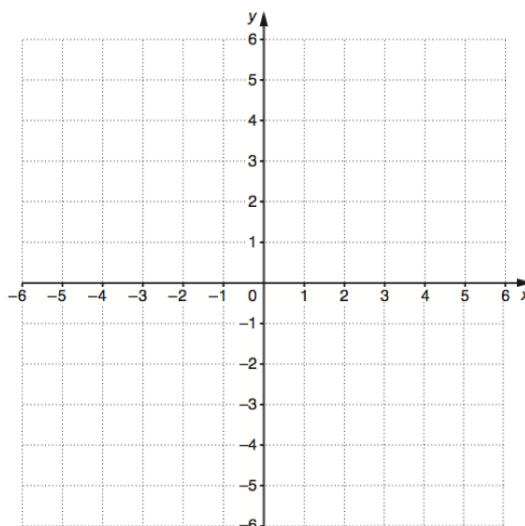


(f)



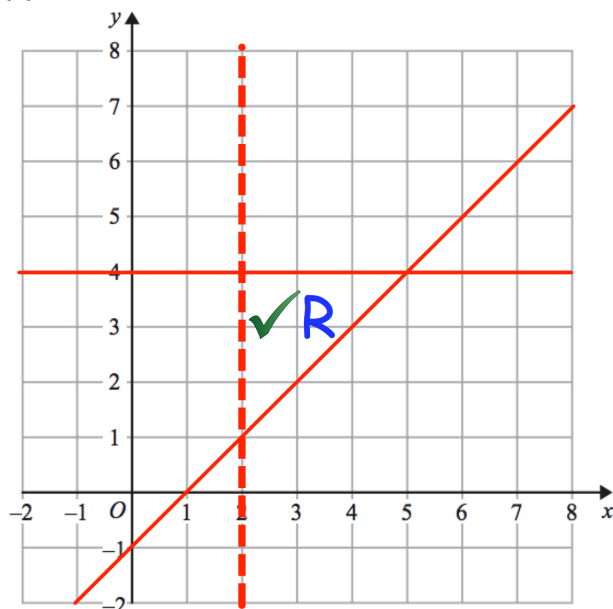
Question 4: On copies of the grid below, clearly indicate the region that satisfies the following inequalities.

- (a) $y > x - 1$, $x \geq -2$ and $y < 2$
- (b) $y \leq 2x$, $x \leq 2$ and $y > -4$
- (c) $y \leq -2x + 2$, $x \geq 0$ and $y > x - 4$
- (d) $x + y < 3$, $-2 \leq x < 3$ and $y \geq 0$
- (e) $y \leq 5x - 4$, $y > x - 4$ and $y \leq -\frac{1}{2}x + 2$
- (f) $y \leq -2x + 4$, $y < 2x - 6$ and $-4 < y < -3$

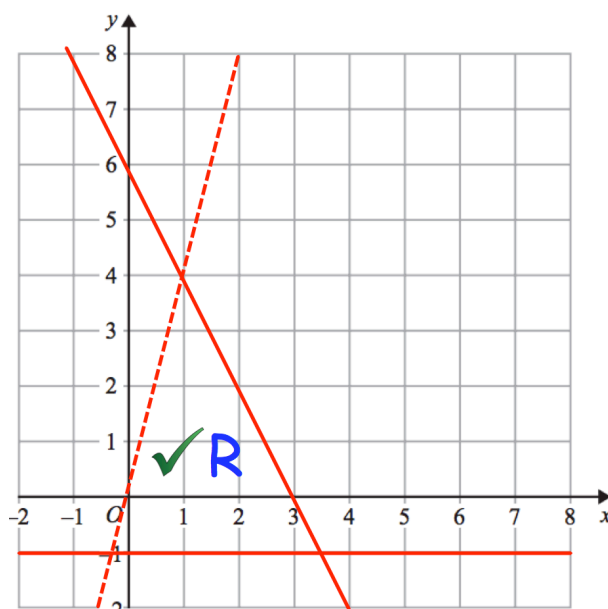


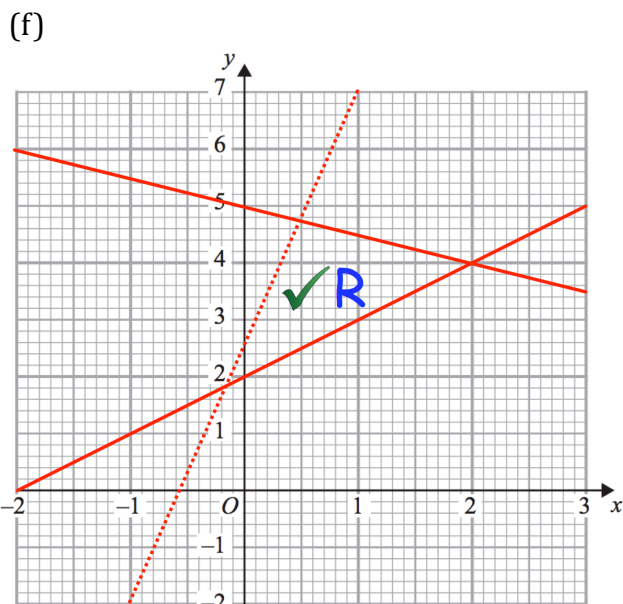
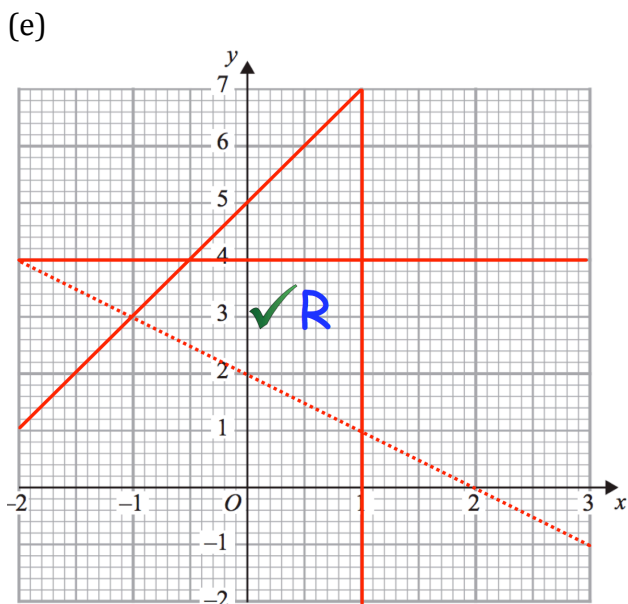
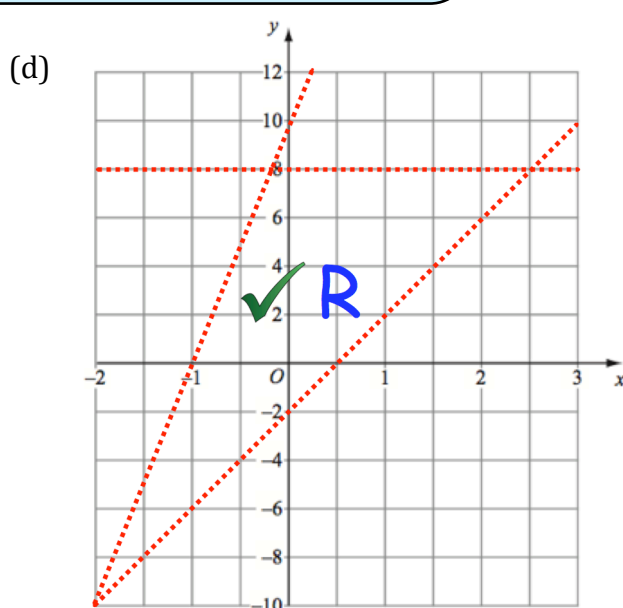
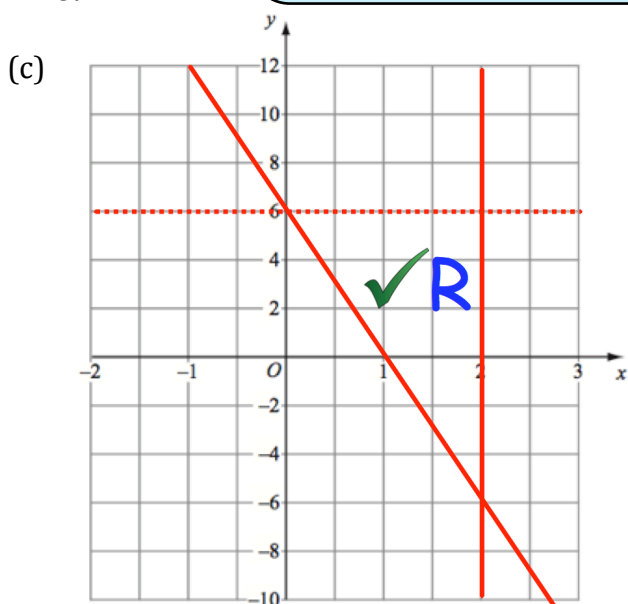
Question 5: State the inequalities that the region labelled R satisfies.

(a)



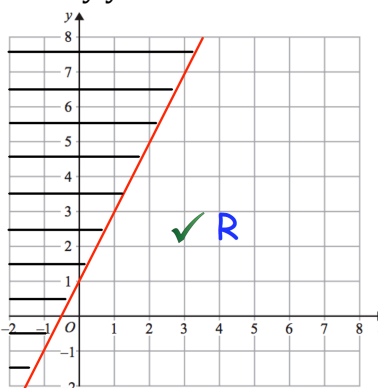
(b)





Apply

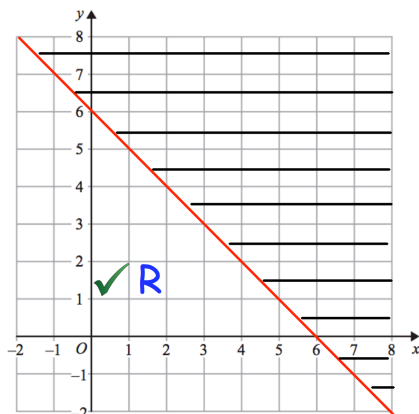
Question 1: Taylor has been asked to represent graphically $y \geq 2x + 1$
Can you spot her mistake?



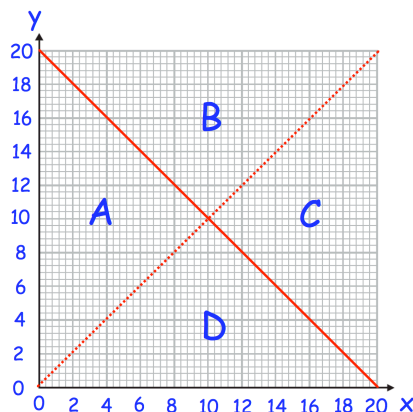
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Question 2: Conor has been asked to represent graphically $x + y < 6$
Can you spot his mistake?



Question 3: At a fitness class, the maximum number of people who can attend is 20.
There are more men than women that attend the fitness class.
 y = number of men that attend the fitness class.
 x = number of women that attend the fitness class.
Which region A, B, C or D represents the information above?

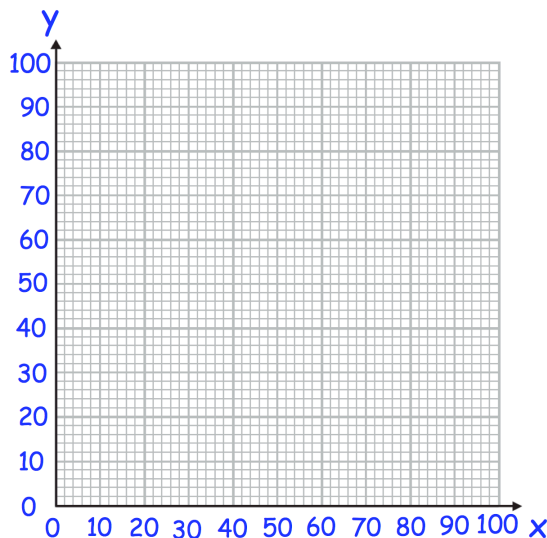


Question 4: A greengrocer sells apples and oranges.

One morning day he sells
up to 50 apples
up to 60 oranges
no more than a total of 90 pieces of fruit.

Let x be the number of apples sold.
Let y be the number of orange sold.

Show the region that satisfies these inequalities



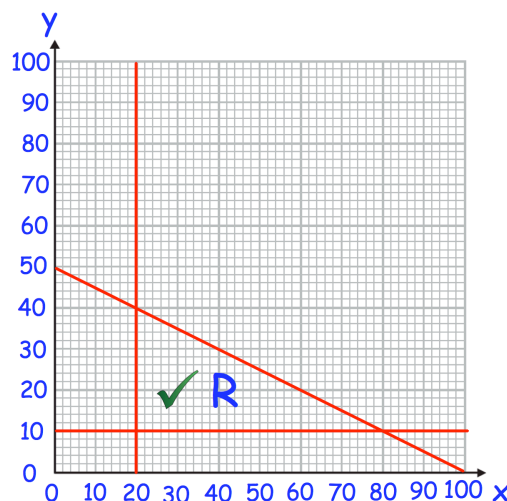
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Question 5: The region below shows information about the number first class passengers and the number of economy passengers on a flight.

x = number of economy passengers and y = number of first class passengers

- (a) Can 15 first class and 60 economy passengers be on the flight?
- (b) Can 30 economy and 40 first class passenger be on the flight?



The profit made by the airline for each economy passenger is £90 and for each first class passenger is £200.

- (c) What is the maximum profit the airline can make on one flight?

Question 6: A football stadium holds a maximum of 1000 fans.
 Adult tickets cost £5 each and child tickets cost £2 each.
 The football club needs to raise at least £3000 to cover costs.
 The football club aims to sell at least one child ticket for two adult tickets sold
 Let x = number of child tickets sold and y = number of adult tickets sold

Explain why: (a) $x + y \leq 1000$ (b) $2x + 5y \geq 3000$ (c) $y \leq 2x$

- (d) Represent this information on a graph.

Answers



Click here



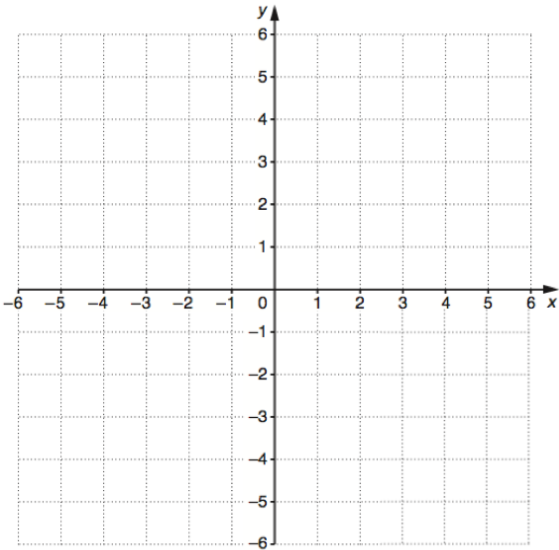
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Graphical Inequalities 2

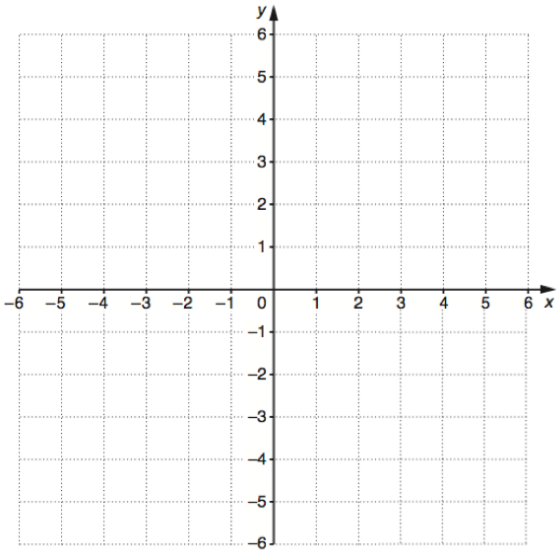
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Templates

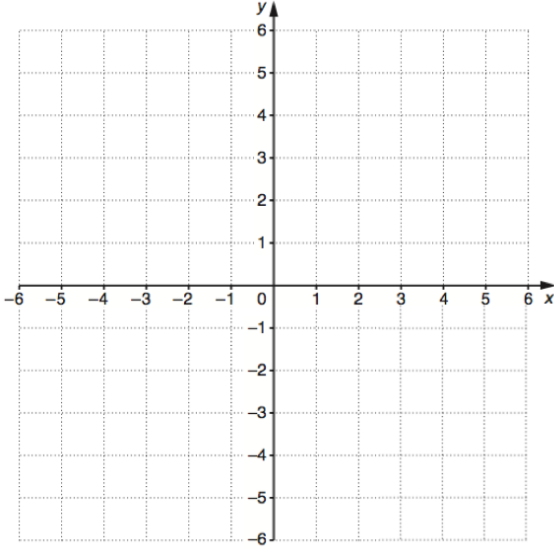
1(a)



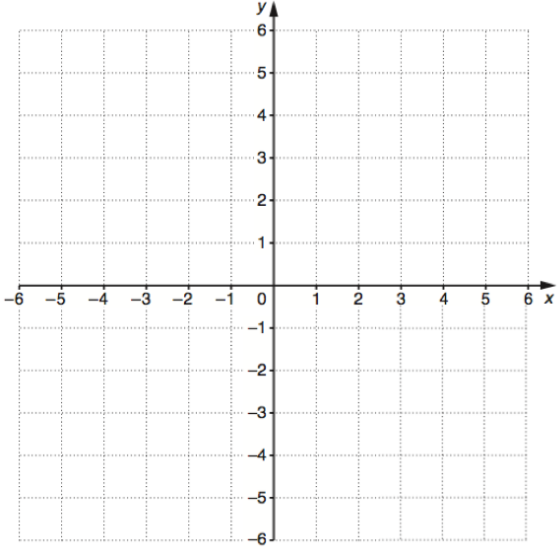
1(b)



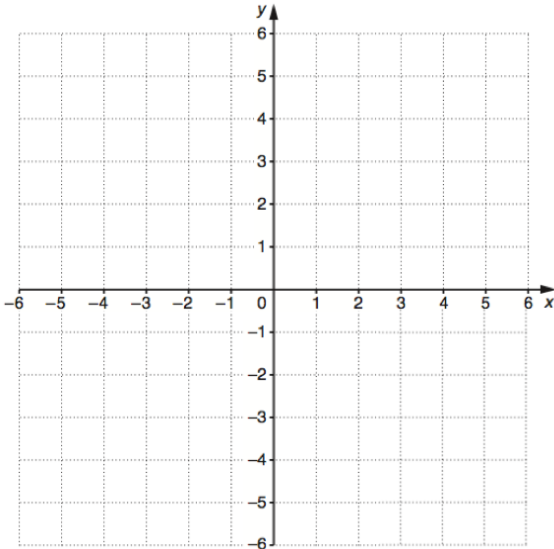
1(c)



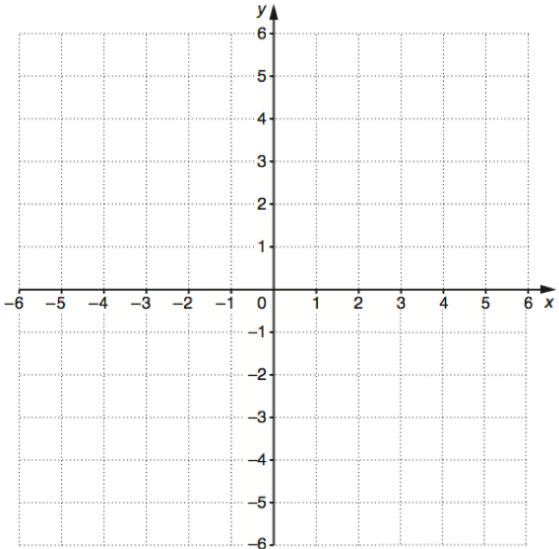
1(d)



1(e)



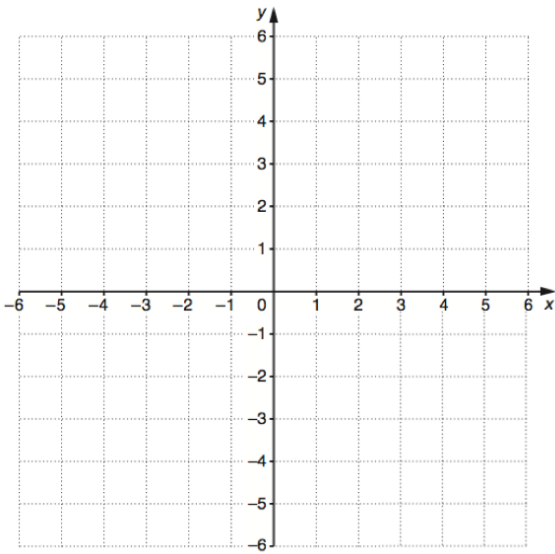
1(f)



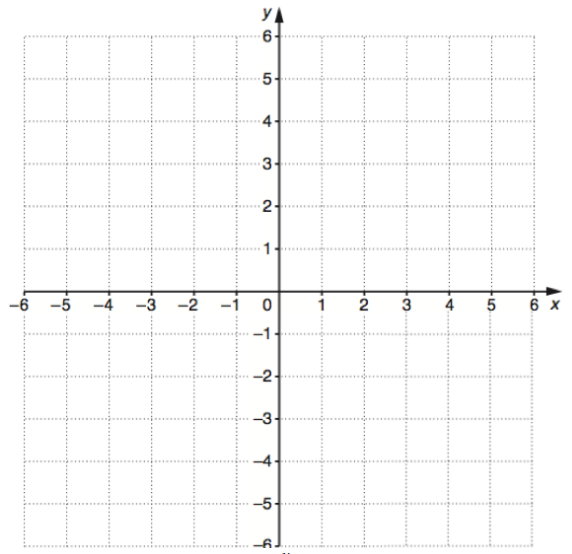
Graphical Inequalities 2

Videos 181, 182 on www.corbettmaths.com

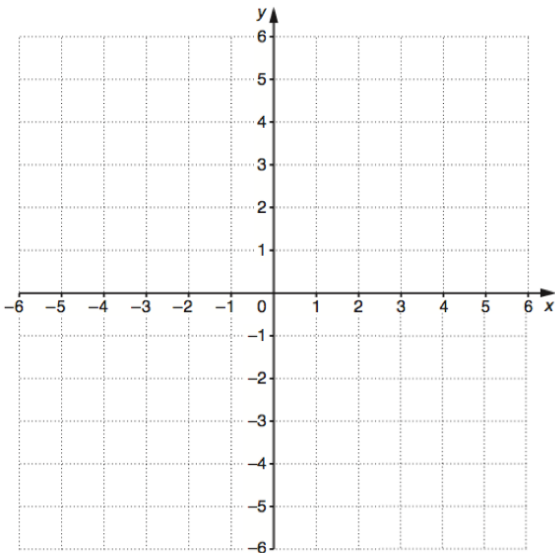
1(g)



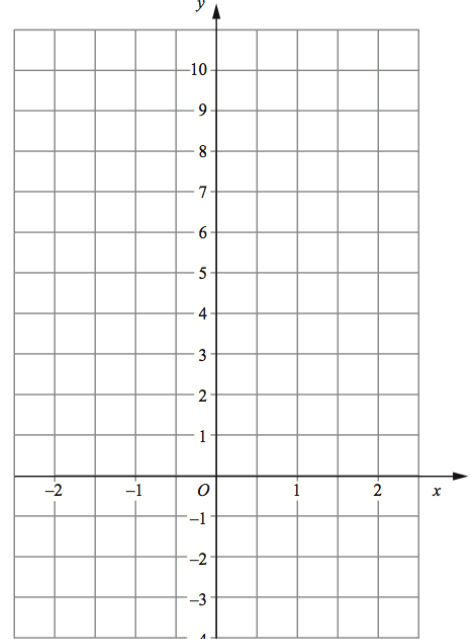
1(h)



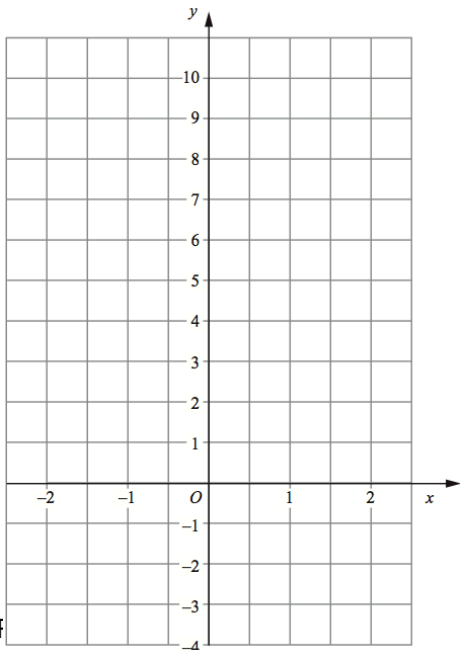
1(i)



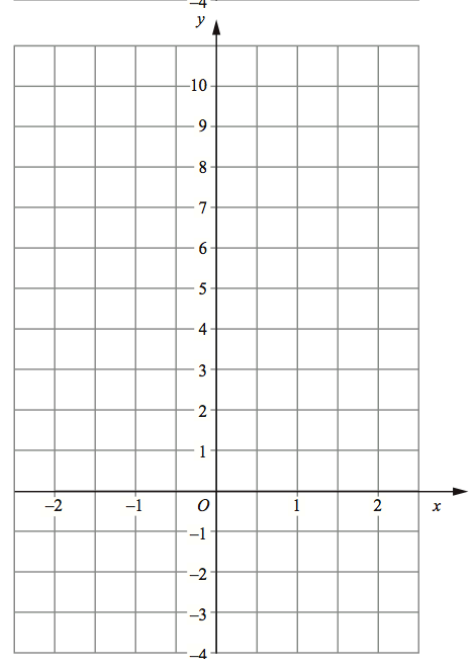
2(a)



2(b)



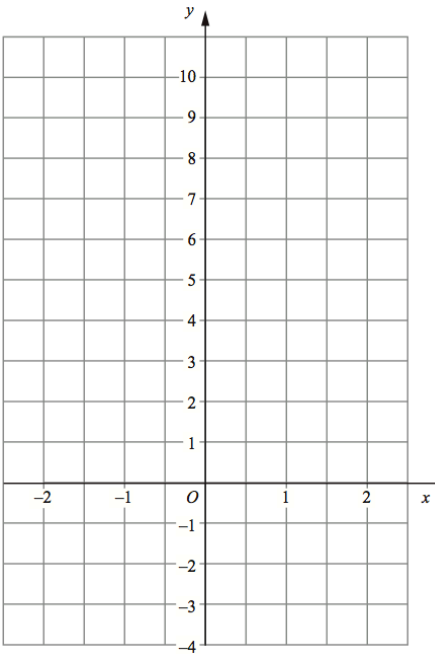
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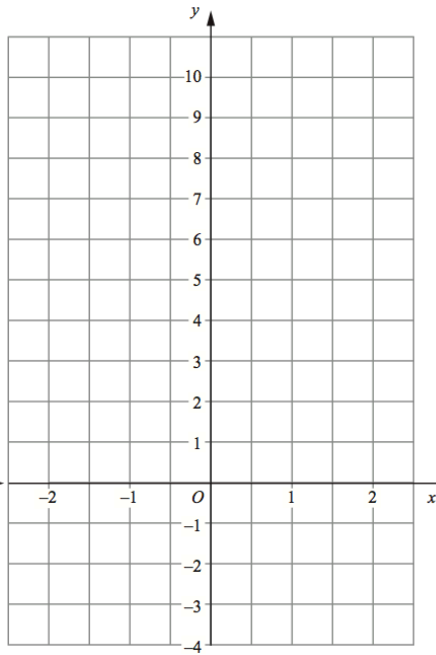
Graphical Inequalities 2

Videos 181, 182 on www.corbettmaths.com

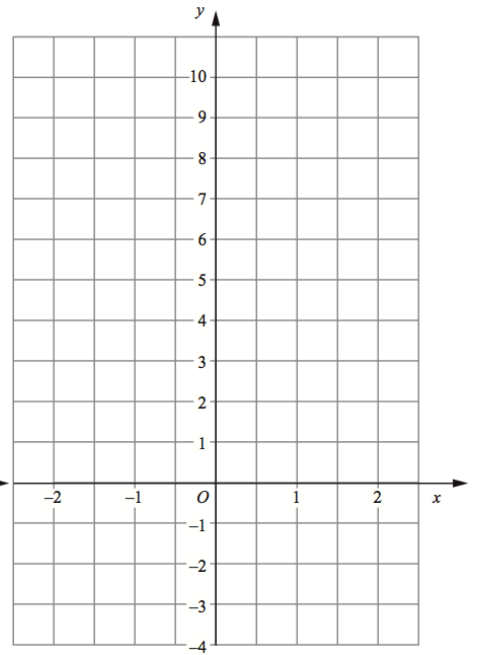
2(d)



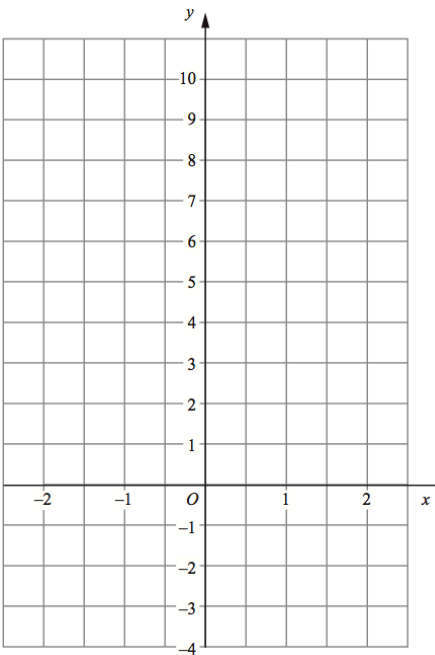
2(e)



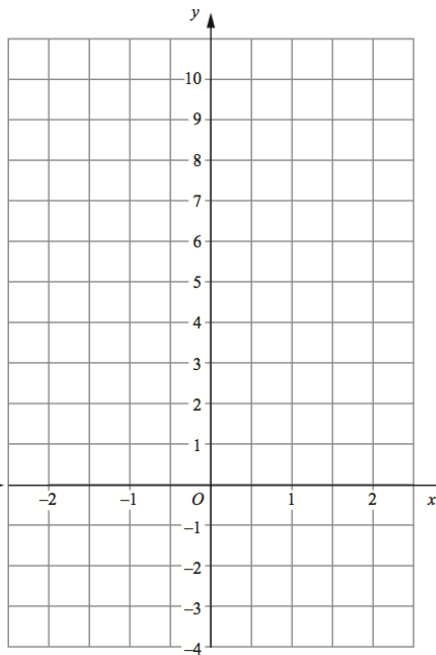
2(f)



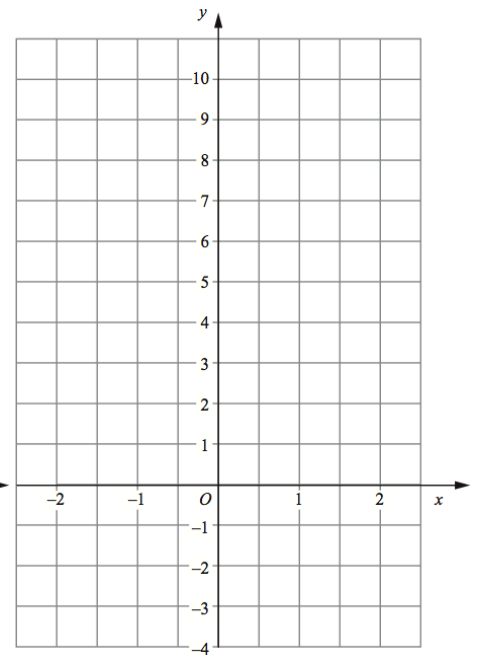
2(g)



2(h)



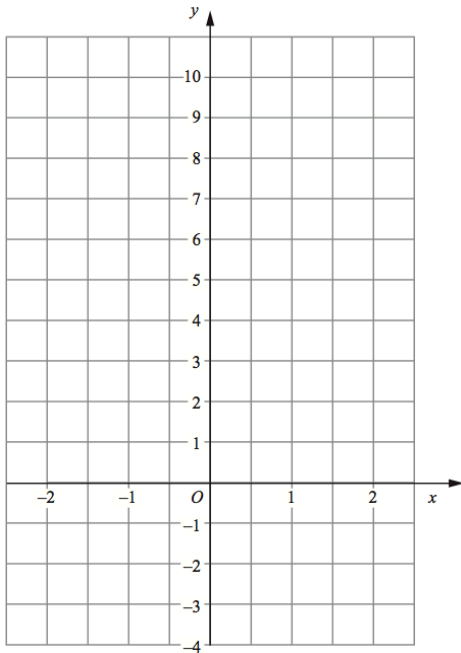
2(i)



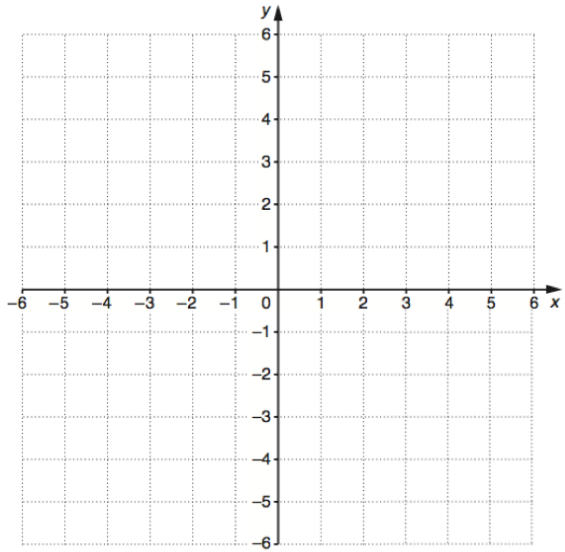
Graphical Inequalities 2

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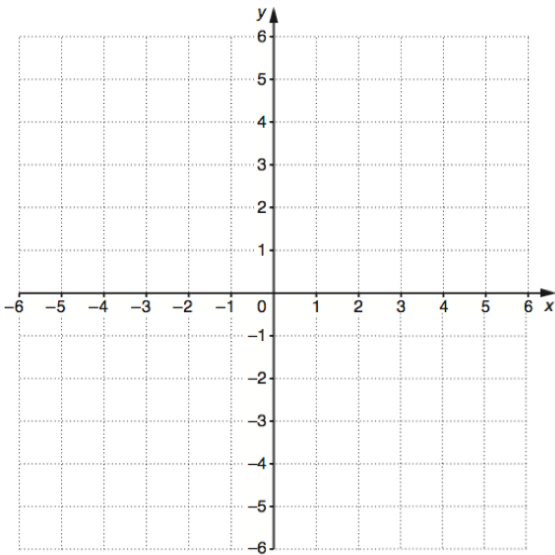
2(j)



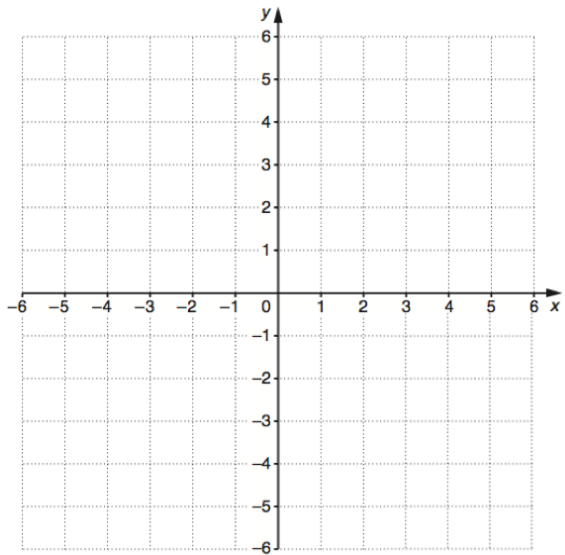
3(a)



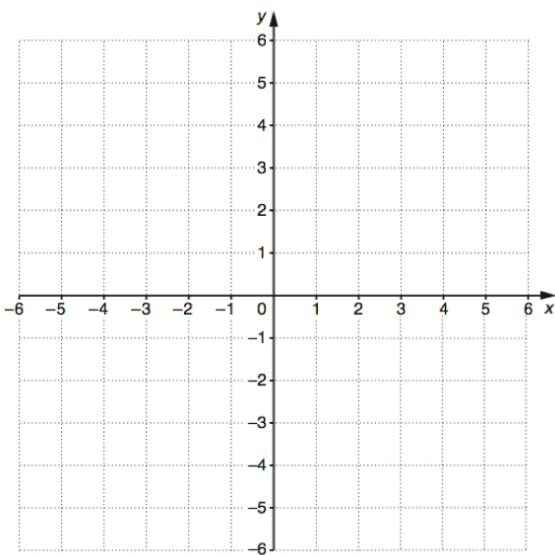
3(b)



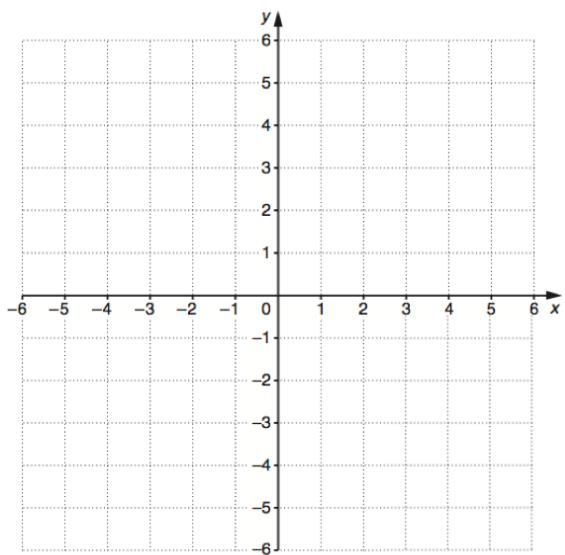
3(c)



3(d)



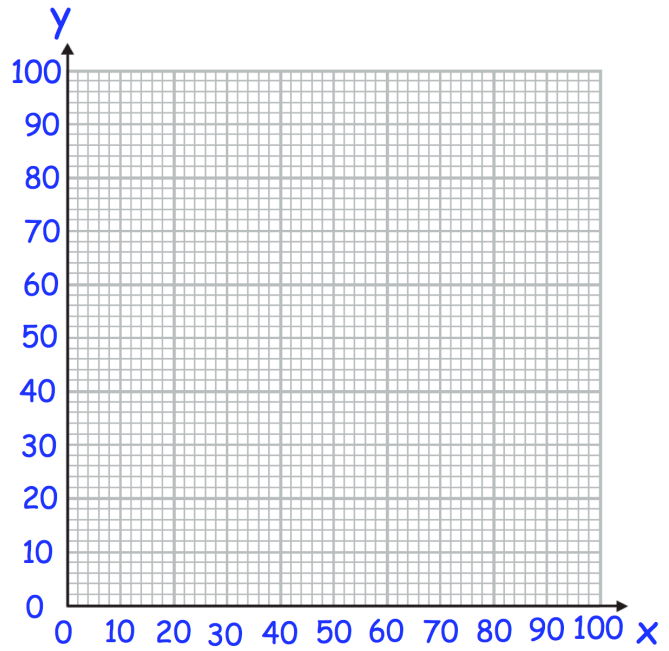
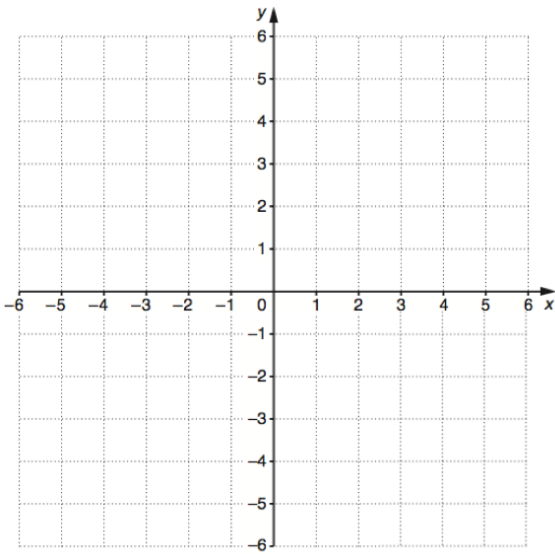
3(e)



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Apply 4



Apply 5

