



Inequalities (F)

Intervention Booklet

Inequalities

Things to remember:

- $<$ means less than
- $>$ means greater than
- \leq means less than or equal to
- \geq means greater than or equal to
- An integer is a whole number
- On a number line, use a full circle to show a value can be equal, and an empty circle to show it cannot.

Questions:

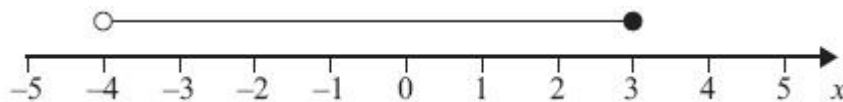
1. $-2 < n \leq 3$
 n is an integer.
Write down all the possible values of n .

.....
(Total for Question is 2 marks)

2. (a) n is an integer.
 $-1 \leq n < 4$
List the possible values of n .

.....
(2)

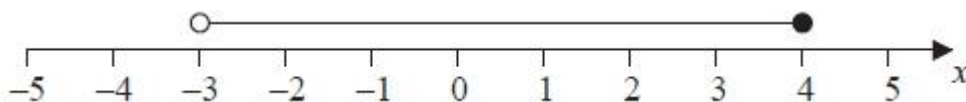
(b)



Write down the inequality shown in the diagram.

.....
(2)
(Total for Question is 4 marks)

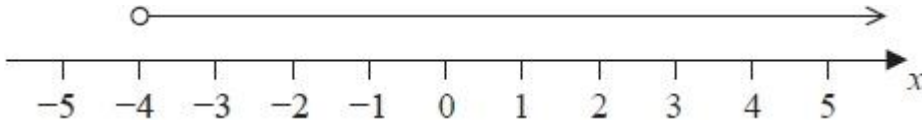
3. Here is an inequality, in x , shown on a number line.



Write down the inequality.

.....
(Total for Question is 2 marks)

4.



(a) Write down the inequality represented on the number line.

.....
(1)

(b) $-3 \leq n < 2$
 $-2 < m < 4$

n and m are integers.

Given that $n = m$, write down all the possible values of n .

.....
(2)
(Total for question = 5 marks)

5. $-5 < y \leq 0$

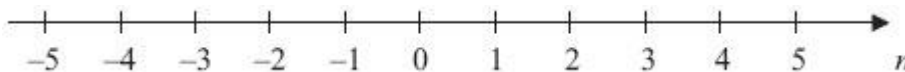
y is an integer.

Write down all the possible values of y .

.....
(Total for Question is 2 marks)

6. $-2 < n \leq 3$

Represent this inequality on the number line.



(Total for Question is 2 marks)

Inequalities

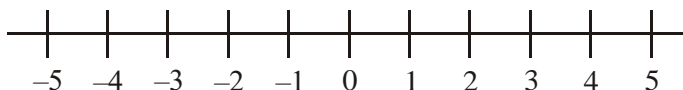
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Questions:

1. (i) Solve the inequality
 $5x - 7 < 2x - 1$

- (ii) On the number line, represent the solution set to part (i).



(Total 3 marks)

2. (a) List all the possible integer values of n such that
 $-2 \leq n < 3$

(2)

- (b) Solve the inequality
 $4p - 8 < 7 - p$

(2)
(Total 4 marks)

3. (a) $-3 \leq n < 2$
 n is an integer.
Write down all the possible values of n .

(2)

- (b) Solve the inequality
 $5x < 2x - 6$

(2)
(Total 4 marks)

4. (a) Solve the inequality
 $3t + 1 < t + 12$

.....
(2)

- (b) t is a whole number.
Write down the largest value of t that satisfies
 $3t + 1 < t + 12$

.....
(1)
(Total 3 marks)

Graphical Inequalities

Things to remember:

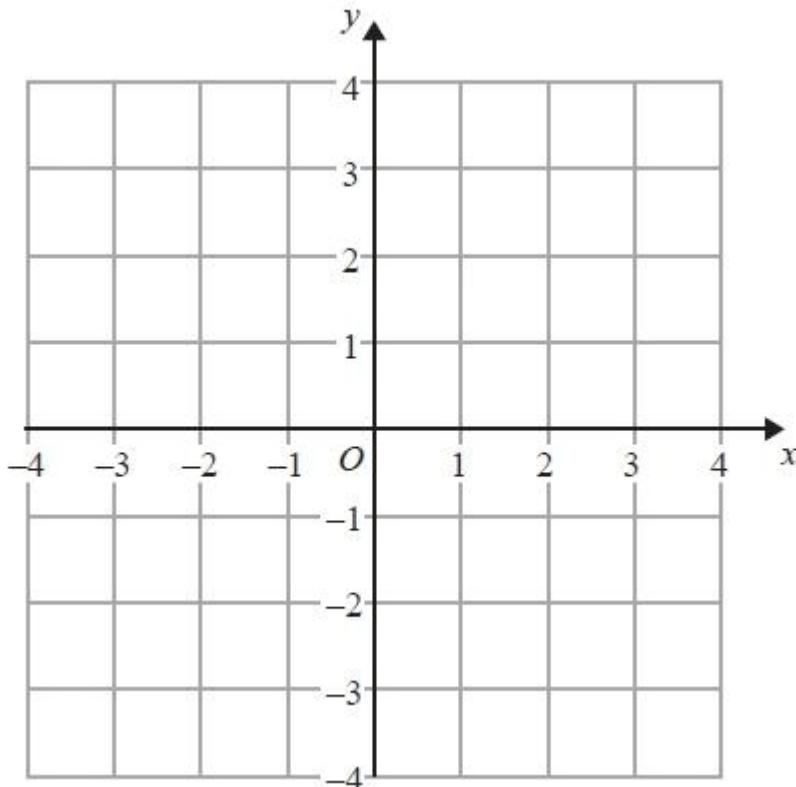
- Use a table of values if you need to help you draw the linear graphs.
- Use a solid line for \geq or \leq , and a dotted line for $>$ or $<$.
- Test a coordinate ((0, 0) is easiest) to work out which side of the line to shade.

Questions:

1. (a) Solve the inequality $5e + 3 > e + 12$

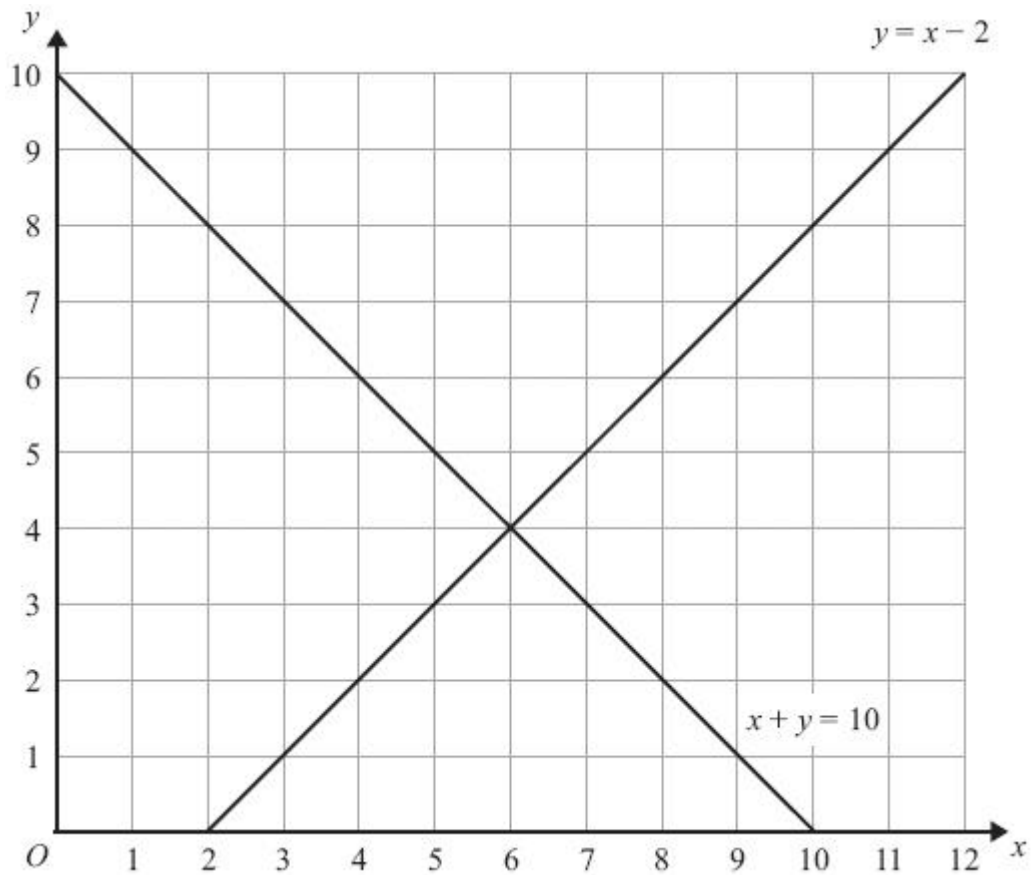
.....
(2)

- (b) On the grid, shade the region defined by the inequality $x + y > 1$



(2)
(Total for Question is 4 marks)

2. The lines $y = x - 2$ and $x + y = 10$ are drawn on the grid.



On the grid, mark with a cross (×) each of the points with integer coordinates that are in the region defined by

$$\begin{aligned} y &> x - 2 \\ x + y &< 10 \\ x &> 3 \end{aligned}$$

(Total for Question is 3 marks)

3. (a) Given that x and y are integers such that

$$3 < x < 7$$

$$4 < y < 9$$

and $x + y = 13$

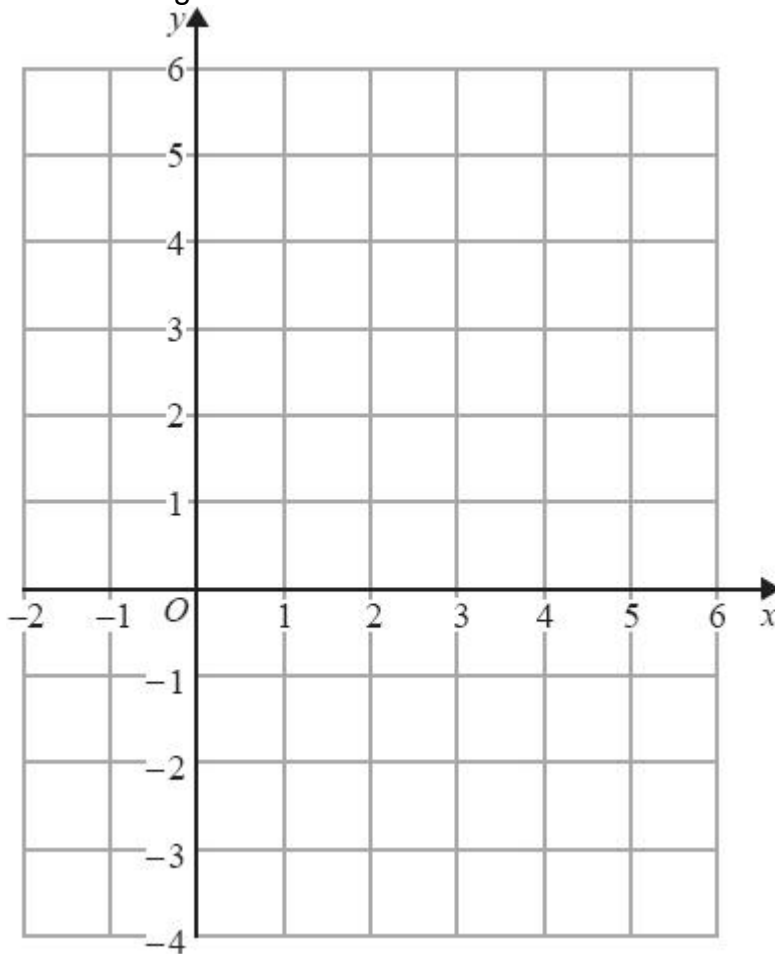
find all the possible values of x .

.....
(2)

(b) On the grid below show, by shading, the region defined by the inequalities

$$y \geq -1 \quad y \leq 4 - x \quad y \leq 3x - 1$$

Mark this region with the letter R.



(4)

(Total for question = 6 marks)