Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions
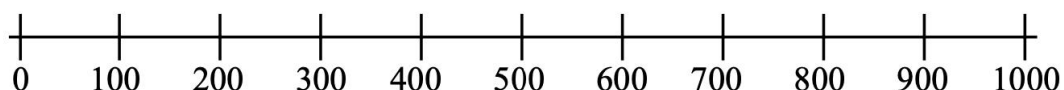
Inequalities 2

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.

- Write your answers in the spaces provided in this question paper.

- Answer ALL questions.

- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

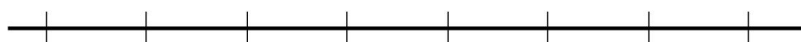- You should have a ruler, compass and protractor where required.

Total Marks :

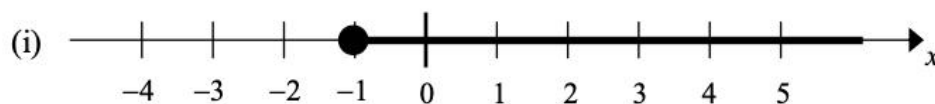1) Show the inequality $550 \leq w < 800$ on the number line below.

```
 +---+---+---+---+---+---+---+---+---+---+
 0  100 200 300 400 500 600 700 800 900 1000
```

[2]

2) Draw the inequality $2 \leq w < 11$ on the number line below.
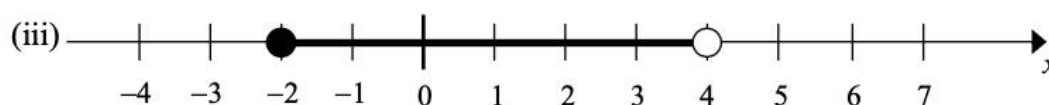
```
 ---+---+---+---+---+---+---+---+---
```

[2]

3)(a) Write down an **inequality** to describe the range of numbers shown on each of these number lines. **NOTE: (i) is worked out for you.**

(i)
```
 ---+---+---+---●===+===+===+===+===+===+===►x
   -4  -3  -2  -1  0   1   2   3   4   5
```
Answer: $x \geq -1$

(ii)
```
 ===+===+===+===+===+===+===○---+---+---►x
   -4  -3  -2  -1  0   1   2   3   4   5
```
Answer: _____

(iii)
```
 ---+---+---●===+===+===+===+===○---+---+---►x
   -4  -3  -2  -1  0   1   2   3   4   5   6   7
```
Answer: _____

(b) Solve the following inequality and illustrate your solution on the number line.

$$2 - 3x \geq 6 - x$$

```
 ---+---+---+---+---+---+---+---+---+---+---►x
   -5  -4  -3  -2  -1  0   1   2   3   4   5
```

(5 marks)

4) (a)   Solve the inequality $\dfrac{5x-1}{2} \geq 7$

Answer............................[2]

(b)   Solve the inequality $3 - x \leq 5$

Answer............................[2]

(c)   Solve the following inequalities:

(i) $\dfrac{2}{3}x + 5 < 39$

Answer............................[3]

(ii) $5 - 3x \leq 38$

Answer............................[2]

5) Solve the inequality $6(5 - 2x) - 4(5 - 3x) > 5(x + 4)$.

Answer............................[3]

6) Solve the inequality $3(2 - x) - 2(3x + 1) \geq 14(1 - x)$.

Answer............................[3]

7) Solve the inequality $6(2 - 4y) + 4(6y - 2) < 4(y + 4)$.

Answer............................[3]

8) Solve the inequality $8(y - 2) - 3(3 + y) \geq 5(1 - y)$.

Answer............................[3]

9) Solve the inequality: $(3x + 2)(2x - 1) \leq (6x + 1)(x - 3)$

Answer............................[4]

10) Solve the inequality: $-4 < 3x - 2 \leq 13$

Answer..[2]

11) Write down all the integer values that satisfy this inequality.

$$x + 8 > 4x - 6 \geq 3(x - 4)$$

Answer..[3]

12) Solve the inequality $\frac{1}{2}x - 2 \leq 3x - 2 < 2 + \frac{1}{2}x$. Show the full range of values that satisfy this inequality.

Answer..[3]

13) Write down all the integer values that satisfy this inequality.

$$2x - 1 \leq 3x + 4 < 7 - x$$

Answer..[3]

14) Solve the inequality, and show the results on a number line.

$$4 \leq 3x - 2 < 9 + x$$

[5]

15) Solve the inequality, and show the results on a number line.

$$x - 5 \leq 3x - 8 < 2x - 3$$

[5]

16) Solve the inequality, and show the results on a number line.

$$2(2 - x) \leq 4x - 9 < 11 + x$$

[5]

17) Solve the inequality, and show the results on a number line.

$$3 - 2x \leq x < 2x + 5$$

[5]

18) Solve the following inequalities and represent the solutions on a **single** number line.

$$3 - 2x < 5$$

$$4 - 3x \geq -8$$

[5]

19)   a) Solve the inequality, giving your answer as a combined inequality.

$$2x - 5 > -11$$

$$3 + 2x \leq 13$$

Answer...

b) List the integer values that satisfy the combined inequality found in a).

Answer...

[5]