Name: SOLUTIONS

GCSE (1 - 9)

Linear Inequalities



Solutions by
Kenneth Stafford
MATHS TUTOR
ken@kennethstafford.co.uk

These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 1F, Q19
2	Edexcel, GCSE, Autumn 2018, Paper 3F, Q19
3	Edexcel, GCSE, Summer 2019, Paper 2F, Q20
4	Edexcel, GCSE, Autumn 2019, Paper 1F, Q19
5	Edexcel, GCSE, Autumn 2019, Paper 1F, Q28
6	Edexcel, GCSE, Autumn 2020, Paper 3F, Q23
7	Edexcel, GCSE, Summer 2022, Paper 1F, Q23
8	Edexcel, GCSE, Summer 2023, Paper 2F, Q23
9	Edexcel, GCSE, November 2022, Paper 1F, Q26

1

(a) Solve $4(x - 5) = 18$

$4x - 20 = 18$

$4x = 38$

$x = \frac{38}{4} = \frac{19}{2} = 9.5$

$x =$ 9.5

(2)

$-3 < t \leqslant 2$
t is an integer.

(b) Write down all the possible values of t.

$-2, -1, 0, 1, 2$

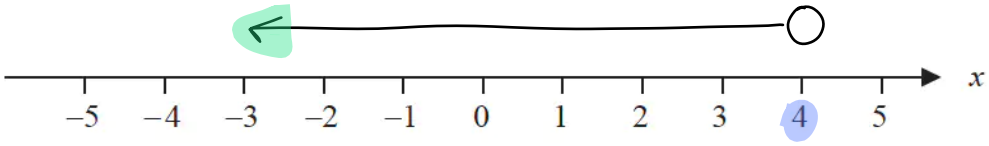
(2)

(Total for Question 19 is 4 marks)

[Edexcel, GCSE, Summer 2017, Paper 1F, Q19]

2

(a) On the number line, show the inequality $x < 4$



(2)

$3 < y \leqslant 7$ where y is an integer.

(b) Write down all the possible values of y.

4, 5, 6, 7

(2)

(c) Solve $3x + 5 \geqslant x + 17$

$3x + 5 \geq x + 17$

$2x + 5 \geq 17$

$2x \geq 12$

$x \geq 6$

$x \geqslant 6$

(3)

(Total for Question 19 is 7 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3F, Q19]

3

(a) Solve $14n > 11n + 6$

$14n > 11n + 6$

$3n > 6$

$n > 2$

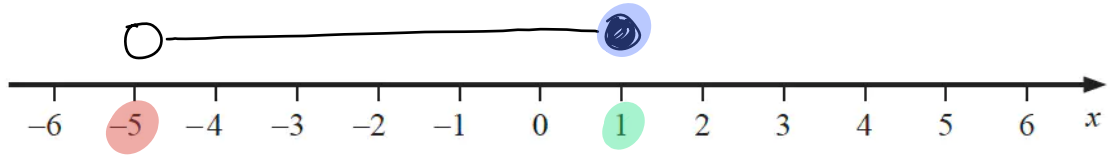
$n > 2$

(2)

(b) On the number line below, show the set of values of x for which $-2 < x + 3 \leqslant 4$

$-2 < x + 3 \leq 4$

$-5 < x \leq 1$



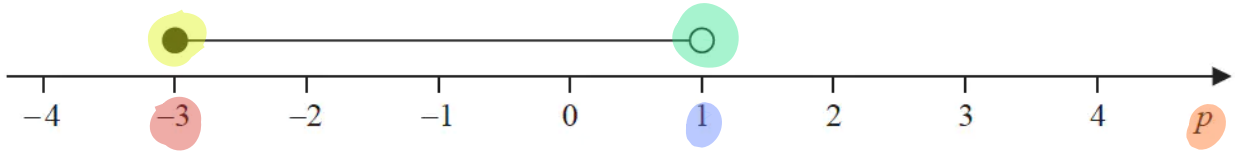
(3)

(Total for Question 20 is 5 marks)

[Edexcel, GCSE, Summer 2019, Paper 2F, Q20]

4

Here is a number line.



Write down the inequality shown on the number line.

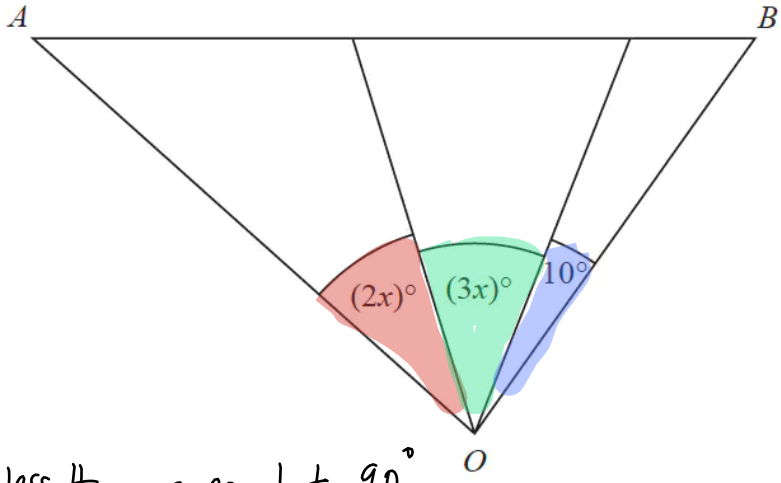
$-3 \leqslant p < 1$

(Total for Question 19 is 2 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q19]

5

The diagram shows triangle AOB.



less than or equal to 90°

Angle AOB is **not** an obtuse angle.

Find the greatest value of x.
You must show all your working.

$2x + 3x + 10 \leq 90$

$5x + 10 \leq 90$

$5x \leq 80$

$x \leq \frac{80}{5}$

$x \leq 16$

16°

(Total for Question 28 is 3 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q28]

6

(a) Simplify $n^3 \times n^5$

$n^{3+5} = n^8$

n^8

(1)

(b) Simplify $\frac{c^3d^4}{c^2d}$

cd^3

cd^3

(2)

(c) Solve $\frac{5x}{2} > 7$

$\frac{5x}{2} > 7$

$5x > 14$

$x > \frac{14}{5}$

$x > 2.8$

$x > 2.8$

(2)

(Total for Question 23 is 5 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q23]

7

Solve $7x - 27 < 8$

$7x - 27 < 8$

$7x < 35$

$x < 5$

$x < 5$

(Total for Question 1 is 2 marks)

[Edexcel, GCSE, Summer 2022, Paper 1F, Q23]

8

$-2 \leqslant n < 5$

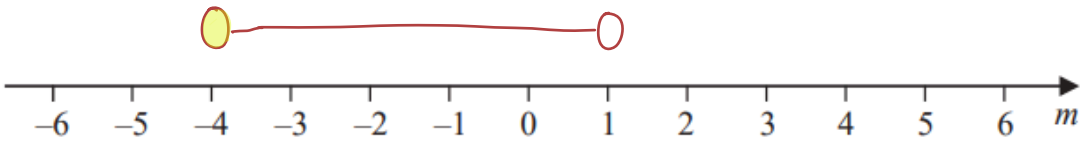
n is an integer.

(a) Write down the greatest possible value of n.

4

(1)

(b) On the number line below, show the inequality $-4 \leqslant m < 1$



(2)

(c) Solve $\frac{2}{5}g - 4 < 6$

$\frac{2}{5}g - 4 < 6$ ↓ +4

$\frac{2}{5}g < 10$ ↓ ×5

$2g < 50$ ↓ ÷2

$g < 25$

(3)

(Total for Question 23 is 6 marks)

[Edexcel, GCSE, Summer 2023, Paper 2F, Q23]

9

(a) Solve $\frac{5x}{2} + 3 > 18$

$\frac{5x}{2} + 3 > 18$

$\frac{5x}{2} > 15$

$5x > 30$

$x > 6$

(3)

(b) Factorise $x^2 + 10x + 9$

$(x+1)(x+9)$

(2)

(Total for Question 26 is 5 marks)

[Edexcel, GCSE, November 2022, Paper 1F, Q26]