JP Maths Revision

Attempt the paper before watching the solutions!

https://www.youtube.com/@JPMathsRevision

FOUNDATION / HIGHER TIER

Linear Inequalities

INSTRUCTIONS

- Use **black ink** or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

INFORMATION

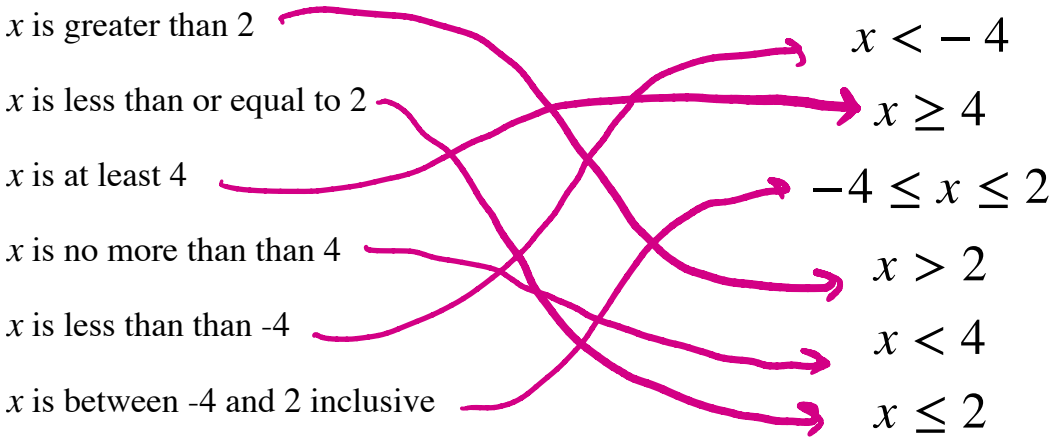
- The marks for **each** question are shown in brackets– *use this as a guide as to how much time to spend on each question.*

ADVICE

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

You've got this!

1. For each of the following, match the statement to the correct inequality:



(Total for Question 1 is 2 marks)

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2. $x > 3$

Write down two possible integer values of x

4, 5

(Total for Question 2 is 1 mark)

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3. $x \leq -2$

Write down three possible integer values of x

-2, -1, 0

(Total for Question 3 is 1 mark)

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4. $-2 < x \leq 3$

Write down all possible integer values of x

-1, 0, 1, 2, 3

(Total for Question 4 is 1 mark)

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5. Solve $x + 4 > 9$

$-4 \quad -4$

$x > 5$

(Total for Question 5 is 1 mark)

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6. Solve $x - 7 \leq 5$

$+7 \quad +7$

$x \leq 12$

(Total for Question 6 is 1 mark)

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7. Solve $2x + 1 < 7$

$2x < 6$

$x < 3$

$x < 3$

(Total for Question 7 is 2 marks)

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8. Solve $3x - 5 \geq 10$

$3x \geq 15$

$x \geq 5$

$x \geq 5$

(Total for Question 8 is 2 marks)

9. Solve $\frac{x}{4} > 3$

$x > 12$

(Total for Question 9 is 2 marks)

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10. Solve $\frac{x+2}{3} \leq 5$

$x + 2 \leq 15$

$x \leq 13$

$x \leq 13$

(Total for Question 10 is 2 marks)

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11. Solve $4x + 3 < 2x + 11$

$2x + 3 < 11$

$2x < 8$

$x < 4$

$x < 4$

(Total for Question 11 is 2 marks)

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12. Solve $7x - 2 \geq 3x + 10$

$4x - 2 \geq 10$

$4x \geq 12$

$x \geq 3$

$x \geq 3$

(Total for Question 12 is 2 marks)

13. Solve $5 - 2x < 11$

$-2x < 6$

$x > -3$

$x > -3$

(Total for Question 13 is 2 marks)

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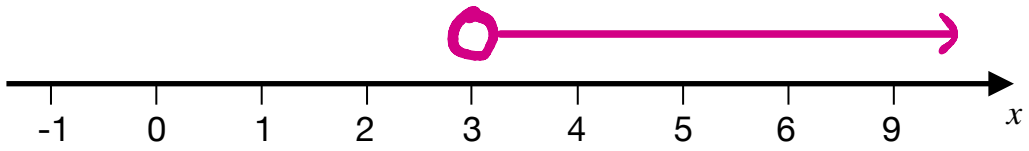
14. On the number line, show the inequality $x > 3$.



(Total for Question 14 is 1 mark)

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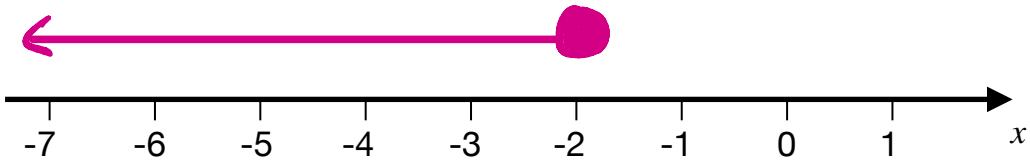
15. On the number line, show the inequality $x \leq -2$.



(Total for Question 15 is 1 mark)

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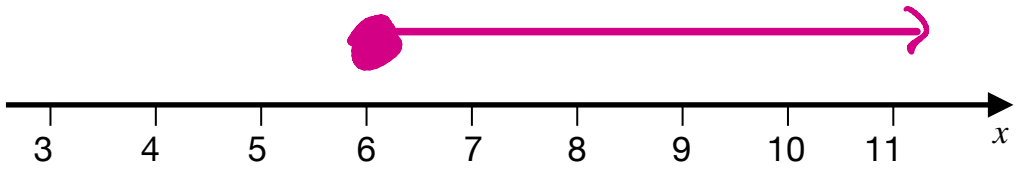
16. On the number line, show the inequality $x \geq 6$.



(Total for Question 16 is 1 mark)

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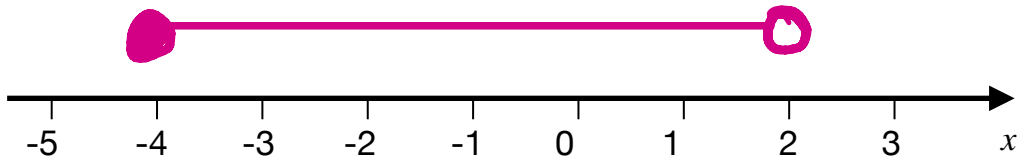
17. On the number line, show the inequality $-4 \leq x < 2$.



(Total for Question 17 is 1 mark)

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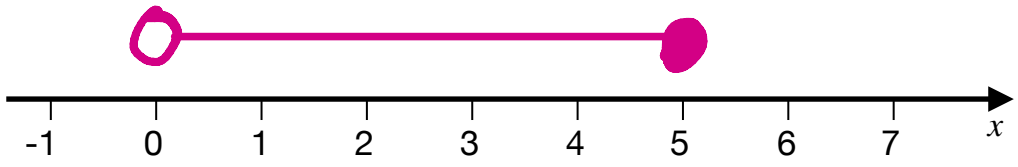
18. On the number line, show the inequality $0 < x \leq 5$.



(Total for Question 18 is 1 mark)

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19. Solve $2 < 2x < 10$

$1 < x < 5$

$1 < x < 5$

(1)

Write down possible integer values of x

$2, 3, 4$

(1)

(Total for Question 19 is 2 marks)

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20. Solve $-6 \leq 3x < 9$

$-2 \leq x < 3$

(1)

Write down possible integer values of x

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

(1)

(Total for Question 20 is 2 marks)

21. Solve $3 < 2x - 1 < 10$

$4 < 2x < 11$

$2 < x < 5.5$

$2 < x < 5.5$

(2)

Write down possible integer values of x

$3, 4, 5$

(1)

(Total for Question 21 is 3 marks)

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22. Solve $-5 \leq 4x + 3 < 11$

$-8 \leq 4x < 8$

$-2 \leq x < 2$

$-2 \leq x < 2$

(2)

Write down possible integer values of x

$-2, -1, 0, 1$

(1)

(Total for Question 22 is 3 marks)

23. A teacher wants students to score at least 80 marks on a test.

A student has already scored 53 marks.

Each question is worth 3 marks.

Write and solve an inequality to find how many more complete questions they must answer correctly.

$53 + 3x \geq 80$

$3x \geq 27$

$x \geq 9$

9

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(Total for Question 23 is 3 marks)

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24. A lift can safely carry no more than 500 kg.

The lift already contains 3 adults weighing 72 kg each.

Children each weigh 35 kg.

Write and solve an inequality to find the maximum number of children.

$3(72) + 35c \leq 500$

$216 + 35c \leq 500$

$35c \leq 284$

$c \leq 8.114$

8

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(Total for Question 24 is 3 marks)

25. Solve $-2x < 8$

$x > -4$

$x > -4$

(Total for Question 25 is 2 marks)

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26. Solve $-5x \geq 15$

$x \leq -3$

(Total for Question 26 is 2 marks)

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27. Solve $12 - 3x > 0$

$-3x > -12$

$x < 4$

$x < 4$

(Total for Question 27 is 2 marks)

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28. Solve $-2(3x - 1) \leq 10$

$3x - 1 \geq -5$

$3x \geq -4$

$x \geq -\frac{4}{3}$

$x \geq \frac{-4}{3}$

(Total for Question 28 is 2 marks)