



JP Maths

Revision



Attempt the paper
before watching the
solutions!

[https://www.youtube.com/
@JPMathsRevision](https://www.youtube.com/@JPMathsRevision)



HIGHER TIER

Quadratic 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.*



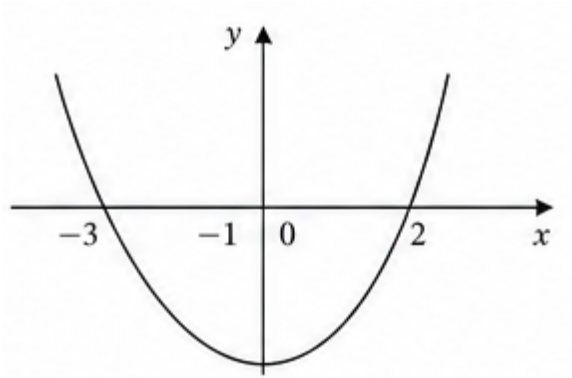
ADVICE

- 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. Use the graph of $y = f(x)$ to solve each inequality:



(a) $f(x) > 0$

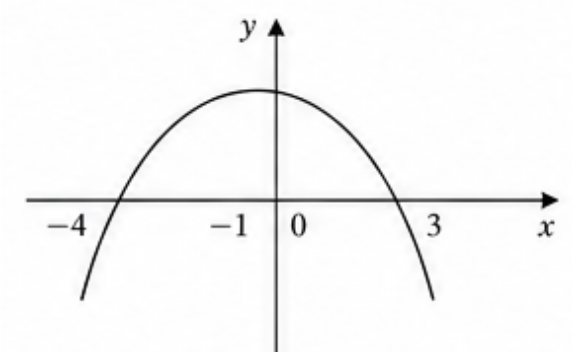
(b) $f(x) \leq 0$

.....
(1)

.....
(1)

(Total for Question 1 is 2 marks)

2. Use the graph of $y = f(x)$ to solve each inequality:



(c) Solve $f(x) > 0$

(d) Solve $f(x) \leq 0$

.....
(1)

.....
(1)

(Total for Question 2 is 2 marks)

3. Solve $x^2 + 5x + 6 > 0$

.....
(Total for Question 3 is 3 marks)

4. Solve $x^2 - 7x + 12 < 0$

.....
(Total for Question 4 is 3 marks)

5. Solve $x^2 + x - 12 \leq 0$

.....
(Total for Question 5 is 3 marks)

6. Solve $x^2 - 9x + 20 \geq 0$

.....
(Total for Question 6 is 3 marks)

7. Solve $x^2 - 4x - 12 < 0$

.....
(Total for Question 7 is 3 marks)

8. Solve $x^2 + 2x - 15 > 0$

.....
(Total for Question 8 is 3 marks)

9. Solve $2x^2 + 7x + 3 > 0$

.....
(Total for Question 9 is 3 marks)

10. Solve $3x^2 - 14x + 8 < 0$

.....
(Total for Question 10 is 3 marks)

11. Solve $5x^2 + 11x - 12 \leq 0$

.....
(Total for Question 11 is 3 marks)

12. Solve $x^2 + 3x > 10$

.....
(Total for Question 12 is 3 marks)

13. Solve $2x^2 - 5x + 1 < 7$

.....
(Total for Question 13 is 3 marks)

14. Solve $3x^2 + 4 > 10x$

.....
(Total for Question 14 is 3 marks)

15. Solve $x^2 + 4x - 7 > 0$

.....
(Total for Question 15 is 3 marks)

16. Solve $2x^2 + 3x - 4 < 0$

.....
(Total for Question 16 is 3 marks)

17. Solve $3x^2 - 2x - 5 \leq 0$

.....
(Total for Question 17 is 3 marks)

18. A rectangle has width x cm and length $x+5$ cm.

Its area is less than 84 cm^2 .

Form and solve an inequality for x .

.....
(Total for Question 18 is 4 marks)

19. A ball is thrown upwards.

Its height is modelled by: $h = -5t^2 + 20t + 3$

Work out when the ball is above 15 m.

.....
(Total for Question 19 is 4 marks)

20. Find the set of possible values of x for which

$$x^2 - 5x + 6 > 0 \quad \text{and} \quad x < 5$$

.....
(Total for Question 20 is 4 marks)

21. Find the set of possible values of x for which

$$x^2 + x - 12 \leq 0 \quad \text{and} \quad x > 0$$

.....
(Total for Question 21 is 4 marks)
