

MATH5.1EL Quiz 2
Inequalities in One Unknown
Time Limit: (30 minutes)

T Yeung

Answer the questions in the spaces provided on the question sheets. If you do not know how to answer a certain question, write down where you get stuck. Answers can be corrected to 3 significant figures if necessary.

Name, class, class no.: _____

Tutor's name: _____

1. (4 marks) If the quadratic curve $y = x^2 + kx + 8$ intersects the straight line $y = 4x - 1$ at two distinct points, find the range of possible values of k .

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on its right side, suggesting it's resting on a surface.

5. (6 marks) Given $x^2 - 2(1+a)x + (3a^2 + 4ab + 4b^2 + 2) = 0$, where a and b are real.
- (a) (3 marks) Show that the discriminant of the equation is $-4[(a-1)^2 + (a-2b)^2]$
- (b) (3 marks) Find a and b if the equation has equal real roots.

[illegible]