

- 9 The equation of a curve is $y = \frac{1}{2}k^2x^2 - 2kx + 2$ and the equation of a line is $y = kx + p$, where k and p are constants with $0 < k < 1$.

- (a) It is given that one of the points of intersection of the curve and the line has coordinates $(\frac{5}{2}, \frac{1}{2})$.

Find the values of k and p , and find the coordinates of the other point of intersection.

[7]

This image shows a full page of white paper with horizontal dotted lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



- (b) It is given instead that the line and the curve do **not** intersect.

Find the set of possible values of p .

[3]

