

The equation of a curve is  $y = 4x^2 - kx + \frac{1}{2}k^2$  and the equation of a line is  $y = x - a$ , where  $k$  and  $a$  are constants.

- (a) Given that the curve and the line intersect at the points with  $x$ -coordinates 0 and  $\frac{3}{4}$ , find the values of  $k$  and  $a$ . [4]

[illegible]

- (b)** Given instead that  $a = -\frac{7}{2}$ , find the values of  $k$  for which the line is a tangent to the curve. [5]

This image shows a full page of white paper with horizontal dashed 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.