2. A hyperbola H has equation

$$\frac{x^2}{a^2} - \frac{y^2}{5} = 1 \quad \text{where } a \text{ is a positive constant}$$

The line with equation $x = \frac{4}{3}$ is a directrix of H

(a) Write down an equation of the other directrix.

(1)

(b) Determine

(i) the value of a

(ii) the coordinates of each of the foci of H

(5)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 2 continued

(Total for Question 2 is 6 marks)