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5. The hyperbola H has equation $\frac{x^2}{25} - \frac{y^2}{4} = 1$

The line l has equation $y = mx + c$, where m and c are constants.

Given that l is a tangent to H,

(a) show that $25m^2 = 4 + c^2$

(4)

(b) Hence find the equations of the tangents to H that pass through the point (1, 2).

(5)

(c) Find the coordinates of the point of contact each of these tangents makes with H.

(3)

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