

**7** The point  $(4, 7)$  lies on the curve  $y = f(x)$  and it is given that  $f'(x) = 6x^{-\frac{1}{2}} - 4x^{-\frac{3}{2}}$ .

(a) A point moves along the curve in such a way that the  $x$ -coordinate is increasing at a constant rate of 0.12 units per second.

Find the rate of increase of the  $y$ -coordinate when  $x = 4$ . [3]

[illegible]

**(b)** Find the equation of the curve. [4]

This image shows a full page of white paper with ten horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.