

19. You are given that  $\mathbf{JL} = 3\mathbf{x} + 2\mathbf{y}$ ,  $\mathbf{LM} = 5\mathbf{x} - 2\mathbf{y}$  and  $\mathbf{MN} = 20\mathbf{x} - 8\mathbf{y}$ .

(a) Express  $\mathbf{JM}$  in terms of  $\mathbf{x}$  and  $\mathbf{y}$  in its simplest form.

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[2]

(b) (i) Show that  $\mathbf{LN} = k\mathbf{LM}$  where the value of the constant  $k$  is to be found.

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[1]

(ii) What can you say about the points  $L$ ,  $M$  and  $N$ ?

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[1]