10 Functions f and g are defined by

$$\mathrm{f}(x) = \frac{8}{x-2} + 2 \quad \text{for } x > 2,$$

$$\mathrm{g}(x) = \frac{8}{x-2} + 2 \quad \text{for } 2 < x < 4.$$

(i) (a) State the range of the function f. [1]

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(b) State the range of the function g. [1]

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(c) State the range of the function fg. [1]

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(ii) Explain why the function gf cannot be formed. [1]

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(iii) Find the set of values of x satisfying the inequality $6\mathrm{f}'(x) + 2\mathrm{f}^{-1}(x) - 5 < 0$. [6]