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4. (i) $f(x) = x \arccos x \qquad -1 \leqslant x \leqslant 1$

Find the exact value of $f'(0.5)$.

(3)

(ii) $g(x) = \arctan(e^{2x})$

Show that

$$g''(x) = k\,\text{sech}(2x)\tanh(2x)$$

where k is a constant to be found.

(5)

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