

Colon

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4. $f(x) = \frac{1}{4} \ln \frac{x-1}{x+1} - \frac{1}{4} \ln \frac{x-2}{x+2}$
 $f'(x) = \frac{1}{4} \left(\frac{1}{x-1} - \frac{1}{x+1} - \frac{1}{x-2} + \frac{1}{x+2} \right)$
 $f''(x) = \frac{1}{4} \left(-\frac{1}{(x-1)^2} + \frac{1}{(x+1)^2} - \frac{1}{(x-2)^2} + \frac{1}{(x+2)^2} \right)$
 $f'''(x) = \frac{1}{2} \left(\frac{2}{(x-1)^3} - \frac{2}{(x+1)^3} - \frac{2}{(x-2)^3} + \frac{2}{(x+2)^3} \right)$
 $f^{(4)}(x) = -\frac{6}{(x-1)^4} + \frac{6}{(x+1)^4} + \frac{6}{(x-2)^4} - \frac{6}{(x+2)^4}$

5. $f(x) = \frac{1}{4} \ln \frac{x-1}{x+1} - \frac{1}{4} \ln \frac{x-2}{x+2}$
 $f'(x) = \frac{1}{4} \left(\frac{1}{x-1} - \frac{1}{x+1} - \frac{1}{x-2} + \frac{1}{x+2} \right)$
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 $f^{(4)}(x) = -\frac{6}{(x-1)^4} + \frac{6}{(x+1)^4} + \frac{6}{(x-2)^4} - \frac{6}{(x+2)^4}$