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(133)

$$f(x) = 2 \ln 3x \lg 2x = 5 \ln 5x + 4 \ln x$$

$$f'(x) = 5 \lg 5x + \lg x = 5 \ln \left(\frac{11}{2} + 5x \right) + \ln \left(\frac{11}{2} + x \right)$$

$$f''(x) = -25 \ln 5x - \ln x = 5^2 \ln \left(2 \cdot \frac{11}{2} + 5x \right) + \ln \left(2 \cdot \frac{11}{2} + x \right)$$

$$f'''(x) = -125 \lg 5x - \lg x = 5^3 \ln \left(3 \cdot \frac{11}{2} + 5x \right) + \ln \left(3 \cdot \frac{11}{2} + x \right)$$

$$\boxed{f^{(n)}(x) = 5^n \ln \left(n \cdot \frac{11}{2} + 5x \right) + \ln \left(n \cdot \frac{11}{2} + x \right)} \quad \text{p.d.}$$

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