$$f(x) = e^{-x^2}\sqrt{4-x^2}$$

$$f'(x) = \frac{d}{dx}\left(e^{-x^2}\sqrt{4-x^2}\right)$$

$$f'(f\cdot g) = f'g + \cdot fg'$$

$$f'(x) = e^{-x^2}(-2x)\sqrt{4-x^2} + e^{-x^2}\frac{(-2x)}{2\sqrt{4-x^2}}$$

semplifica

$$-e^{-x^2}\cdot 2x\sqrt{4-x^2}\cdot - e^{-x^2}\cdot\frac{1}{\sqrt{4-x^2}}\cdot x$$

$$-2x\sqrt{4-x^2}\,e^{-x^2} - e^{-x^2}\cdot\frac{x}{\sqrt{4-x^2}}$$

$$a^{-n} = \frac{1}{a^n}$$

$$-2x\sqrt{4-x^2}\cdot\frac{1}{e^{x^2}} - \frac{xe^{-x^2}}{\sqrt{4-x^2}}$$

$$-2x\sqrt{4-x^2}\cdot\frac{1}{e^{x^2}} - \frac{x}{\sqrt{4-x^2}\,e^{x^2}}$$

$$-\frac{2x\sqrt{4-x}}{e^{x^2}} - \frac{x}{\sqrt{4-x^2}\,e^{x^2}}$$

$$-\frac{2x(4-x^2)+x}{e^{x^2}\sqrt{4-x^2}}$$

$$-\frac{8x-2x^3+x}{e^{x^2}\sqrt{4-x^2}}$$

$$-\frac{9x-2x^3}{e^{x^2}\sqrt{4-x^2}}$$

$$\frac{2x^3-9x}{e^{x^2}\sqrt{4-x^2}}$$

$$f'(x) = \frac{2x^3-9x}{e^{x^2}\sqrt{4-x^2}}$$