

9. $f(x) = \frac{3x^2 - 7x + 2}{x}$

$$= \frac{3x^2}{x} - \frac{7x}{x} + \frac{2}{x}$$

$$= 3x - 7 + 2x^{-1}$$

$$f'(x) = 3 + 0 + 2(-1)x^{-1-1}$$

$$= 3 - 2x^{-2}$$

$$= 3 - \frac{2}{x^2}$$

$$= \frac{3}{1} - \frac{2}{x^2}$$

$$= \frac{3x^2}{x^2} - \frac{2}{x^2}$$

$$= \frac{3x^2 - 2}{x^2}$$

10. $f(x) = \sqrt[4]{x} + \sqrt{x}$

$$= x^{\frac{1}{4}} + x^{\frac{1}{2}}$$

$$f'(x) = \frac{1}{4}x^{\frac{1}{4}-1} + \frac{1}{2}x^{\frac{1}{2}-1}$$

$$= \frac{1}{4}x^{-\frac{3}{4}} + \frac{1}{2}x^{-\frac{1}{2}}$$

$$= \frac{1}{4x^{\frac{3}{4}}} + \frac{1}{2x^{\frac{1}{2}}}$$

$$= \frac{1}{4x^{\frac{3}{4}}} + \frac{1}{2x^{\frac{1}{2}}}$$

$$= \frac{1}{4x^{\frac{3}{4}}} + \frac{1 \cdot 2x^{\frac{1}{4}}}{4x^{\frac{3}{4}}}$$

$$= \frac{1 + 2x^{\frac{1}{4}}}{4x^{\frac{3}{4}}}$$

11. $f(x) = \frac{3}{\sqrt[4]{x}} - 2e^x - \sin x$

$$= \frac{3}{x^{\frac{1}{4}}} - 2e^x - \sin x$$

$$= 3x^{-\frac{1}{4}} - 2e^x - \sin x$$

$$f'(x) = 3(-\frac{1}{4})x^{-\frac{1}{4}-1} - 2e^x - \cos x$$

$$f'(x) = -\frac{3}{4}x^{-\frac{5}{4}} - 2e^x - \cos x$$

$$f'(x) = \frac{-3}{4x^{\frac{5}{4}}} - 2e^x - \cos x$$