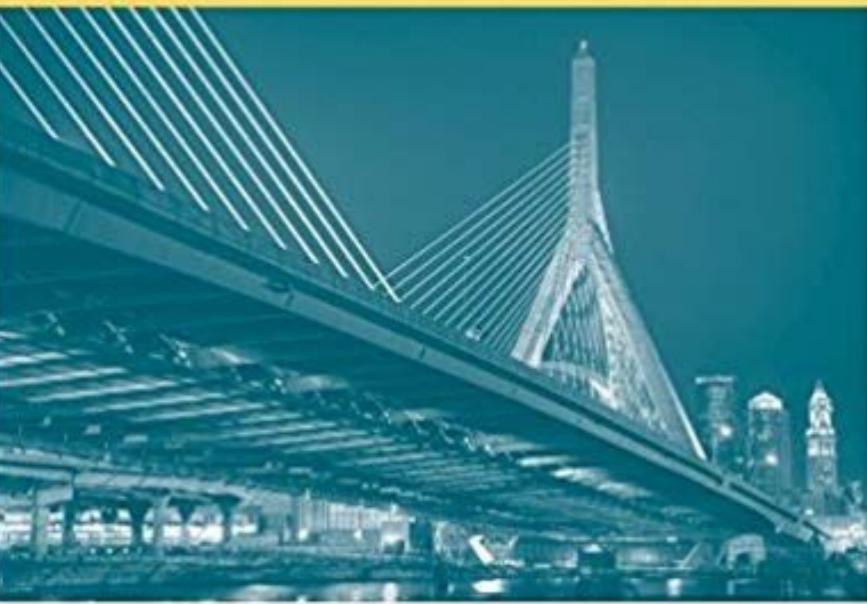


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Herbert Kreyszig / Erwin Kreyszig

**STUDENT SOLUTIONS MANUAL****AND STUDY GUIDE**

for chapters 13-25 of

Erwin Kreyszig's

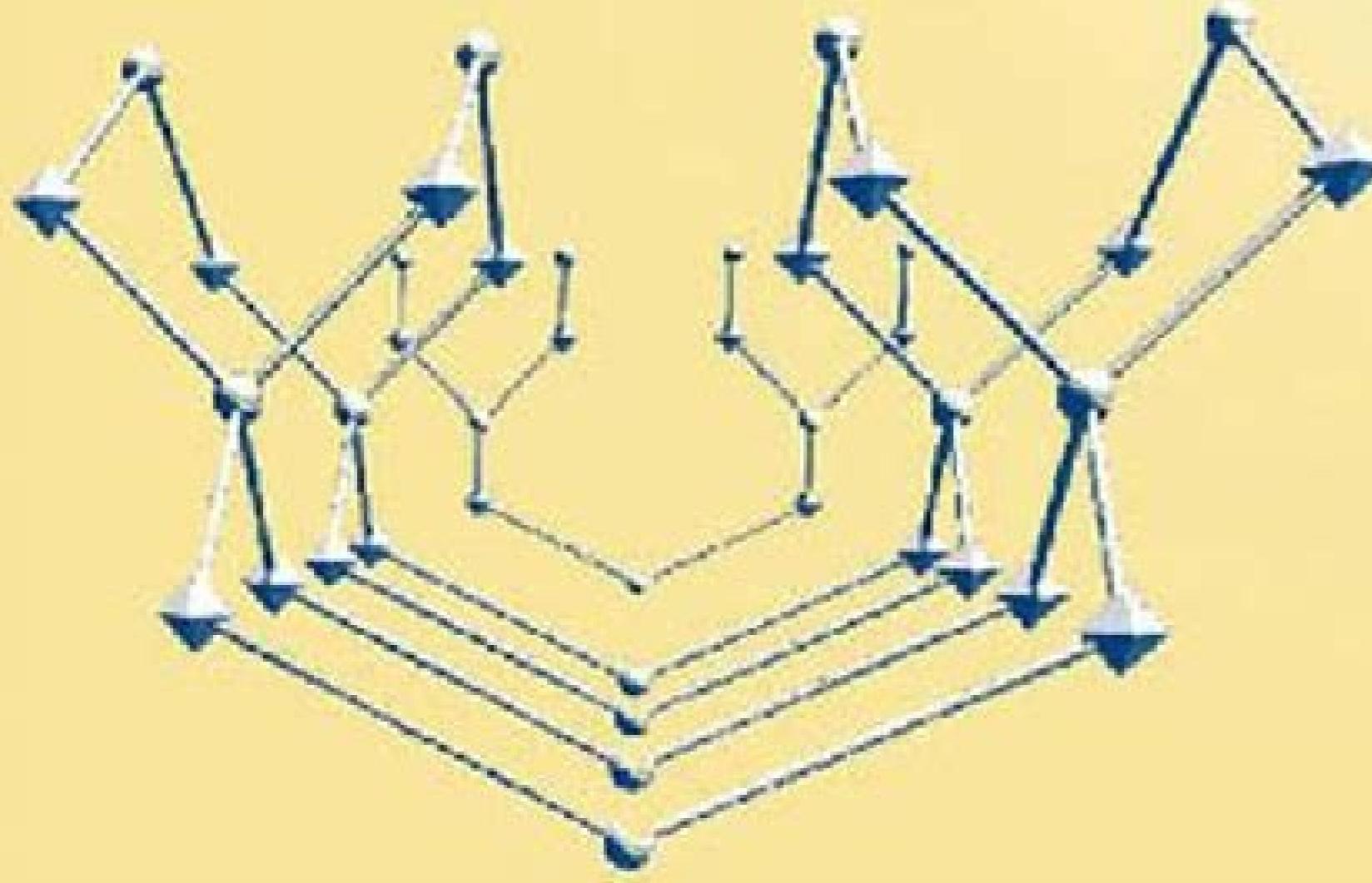
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Questions Related to the Definition. Power Rule, Product/Quotient Rule, Chain Rule, Sketching, Implicit Differentiation Using the Definition, Boundary

① Find the derivative using the definition:

② $f(x) = 3x + 4 \quad \text{③ } 1 - 2x^2 + 9x \quad \text{④ } \sqrt{1+3x} = f(x)$

⑤ $g(x) = \frac{1}{x}$

⑥ Find the derivative using the power rule, product rule, quotient rule, chain rule (Not using in this section)

⑦ $f(x) = 8 \quad \text{⑧ } f(x) = \pi^{100} \quad \text{⑨ } f(x) = x^{\frac{10}{3}} + 5x^{\frac{5}{3}}$

⑩ $f(x) = \frac{9}{x^{10}}$

⑪ $g(t) = \frac{1}{2}(t^4 + t) \quad \text{⑫ } g(t) = \sqrt{t} + \frac{1}{\sqrt{t}}$

⑬ $h(x) = (2x^4 + 6)(x^2 - 5) \quad \text{⑭ } y = \sqrt{x}(x-1)$

⑮ $g = \frac{t^4}{5t^2 - t + 1} \quad \text{⑯ } y = \frac{v^2 - 4v\sqrt{v^2}}{v}$

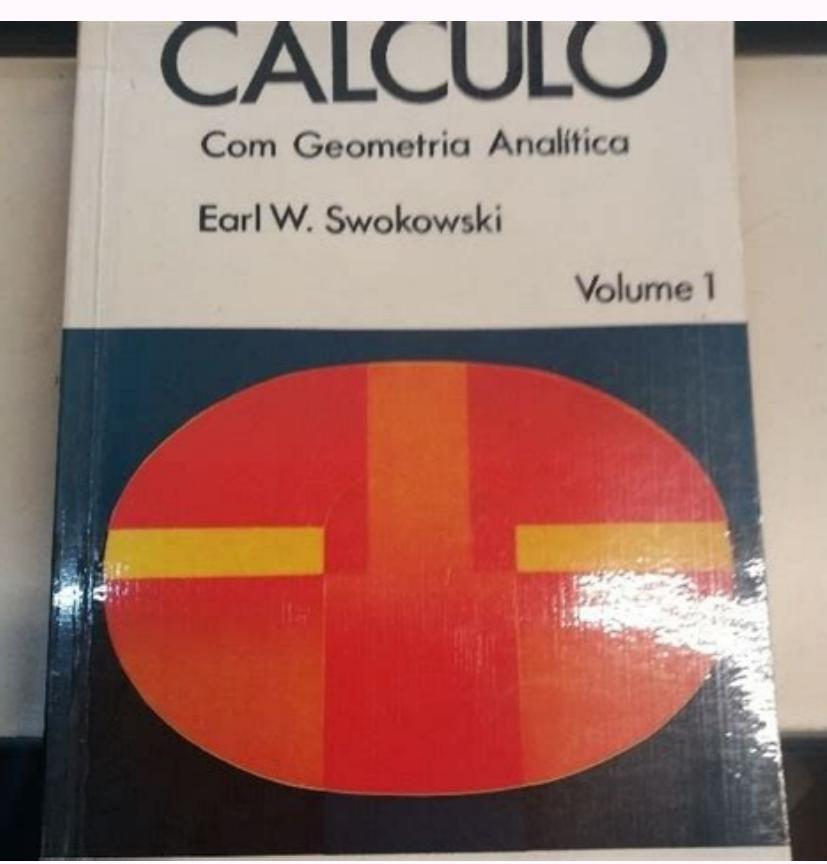
⑰ $y = A + \frac{B}{x^2} + \frac{C}{x^3} \quad \text{⑱ } y = \sqrt[3]{t^2}(t^2 + t + t^3)$

⑲ $y = (x^3 + 3x)^{100} \quad \text{⑳ } \sqrt[5]{x^2 + x - 6} + y$

㉑ $y = (t^4 - 1)^3 (t^5 - 1)^4 \quad \text{㉒ } y = \sqrt{\frac{x-1}{x+1}}$

*Made by
Astrakhan*

- $\frac{d^4y}{dx^4} + \sin(y'') = 0$
- $y' + 5y = 0$
- $\left(\frac{ds}{dt}\right)^4 + 3s \frac{d^2s}{dt^2} = 0$
- $\left(\frac{d^2y}{dx^2}\right)^2 + \cos\left(\frac{dy}{dx}\right) = 0$
- $\frac{d^2y}{dx^2} = \cos 3x + \sin 3x$



Basic differential calculus problems and solutions