

①

2.5: Implicit Differentiation wkst

① $\frac{dy}{dx} = \frac{-x}{y}$

⑭ $\frac{d^2y}{dx^2} = \frac{10}{x^2}$

② $\frac{dy}{dx} = \frac{2x}{3y^2 + 2y}$

⑮a $\frac{dy}{dx} = \frac{-y - 2xy}{2x + 2x^2}$

③ $\frac{dy}{dx} = \frac{-y^{1/2}}{x^{1/2}}$

⑮b $-5/12 = \frac{dy}{dx}$

⑮c $y - 1 = \frac{-5}{12}(x - 2)$

④ $\frac{dy}{dx} = \frac{-3x^2 + y}{-x + 2y}$

⑯ HT: $(-4, 0)$ and $(-4, 10)$

VT: $(0, 5)$ and $(-8, 5)$

⑤ $\frac{dy}{dx} = \frac{1 - 3x^2y^3}{3x^3y^2 - 1}$

⑥ $\frac{dy}{dx} = \frac{6xy - 3x^2 - 2y^2}{4xy - 3x^2}$

⑦ $\frac{dy}{dx} = \frac{\cos x}{4 \sin 2y}$

⑧ $\frac{dy}{dx} = \frac{1 - \cos x + \tan y}{-x \sec^2 y}$ or $-\frac{\cos x - 1 - \tan y}{x \sec^2 y}$

⑨ $\frac{dy}{dx} = \frac{-y}{x}$ $m = -\frac{1}{6}$ at $(-6, -1)$

⑩ $\frac{dy}{dx} = \frac{98}{y(x^2 + 49)^2}$, at $(7, 0)$ $m = \text{undefined}$

⑪ $\frac{dy}{dx} = -\frac{y^{1/3}}{x^{4/3}}$ at $(8, 1)$ $m = -\frac{1}{2}$

⑫ $\frac{d^2y}{dx^2} = \frac{-4}{y^3}$

⑬ $\frac{d^2y}{dx^2} = \frac{-36}{y^3}$