

$$4.3. \quad y = \sqrt[3]{(x^2+7x)^2} = (x^2+7x)^{2/3} \quad y' = \frac{2}{3}(x^2+7x)^{-1/3} \cdot (2x+7) = \frac{2(2x+7)}{3\sqrt[3]{x^2+7x}}$$

$$44. \quad y = (3x^2-5x)^{10} \quad y' = 10(3x^2-5x)^9 \cdot (6x-5)$$

$$4.5. \quad y = \left(\frac{1}{x^2} + \frac{1}{x}\right) \cdot x \quad y' = \left(\frac{1+x}{x^2}\right) \cdot x = \frac{x+x^2}{x^2}$$

$$y' = \frac{(1+2x)x^2 - 2x(x+x^2)}{x^4} = \frac{x^2 + 2x^3 - 2x^2 - 2x^3}{x^4} = \boxed{-\frac{1}{x^2}}$$

$$46. \quad y = \sqrt[3]{(1+x)^2} = (1+x)^{2/3} \quad y' = \frac{2}{3}(1+x)^{-1/3} = \frac{2}{3\sqrt[3]{1+x}}$$

$$47. \quad y = 2x \cdot (5x)^{1/2} \quad y' = 2\sqrt{5x} + \frac{2x \cdot 5}{2\sqrt{5x}} =$$

$$y' = \frac{2 \cdot (5x) + 5x}{\sqrt{5x}} = \frac{10x + 5x}{\sqrt{5x}} = \frac{15x}{\sqrt{5x}} = \frac{15x\sqrt{5x}}{5x}$$

$$y' = 3\sqrt{5x}$$

$$48. \quad y = \frac{x}{\sqrt{1+x}} = \frac{1\sqrt{1+x} - \frac{x}{2} \cdot (1+x)^{-1/2}}{1+x} = \frac{\sqrt{1+x} - \frac{x}{2\sqrt{1+x}}}{2(1+x)} =$$

$$= \frac{2(1+x) - \frac{x}{\sqrt{1+x}}}{2(1+x)} = \frac{2+2x - \frac{x}{\sqrt{1+x}}}{(2+2x)\sqrt{1+x}} = \frac{2+x}{(2+2x)\sqrt{1+x}}$$

$$49. \quad y = (x - \sqrt{1-x^2})^2 \quad y' = 2(x - \sqrt{1-x^2}) \cdot \left(1 - \frac{-2x}{2\sqrt{1-x^2}}\right) =$$

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

$$= \frac{8x^2 - 4}{2\sqrt{1-x^2}} = \frac{4x^2 - 2}{\sqrt{1-x^2}}$$