

$$\textcircled{1} \quad y = \frac{6+3x-x^2}{6-3x+x^2}; \quad y' = ?$$

$$\begin{aligned} y' &= \frac{(6+3x-x^2)' \cdot (6-3x+x^2) - (6+3x-x^2) \cdot (6-3x+x^2)'}{(6-3x+x^2)^2} \\ &= \frac{(3-2x)(6-3x+x^2) - (6+3x-x^2)(-3+2x)}{(6-3x+x^2)^2} \\ &= \frac{(3-2x)(6-3x+x^2) + (6+3x-x^2)(3-2x)}{(6-3x+x^2)^2} \\ &= \frac{(3-2x)(6-3x+x^2+6+3x-x^2)}{(6-3x+x^2)^2} = \frac{12(3-2x)}{(6-3x+x^2)^2} \end{aligned}$$

$$\textcircled{2} \quad y = \arcsin \sqrt{1-121x^2}, \quad y' = ?$$

$$\begin{aligned} y' &= \frac{1}{\sqrt{1-(\sqrt{1-121x^2})^2}} \cdot (\sqrt{1-121x^2})' \\ &= \frac{1}{\sqrt{1-(1-121x^2)}} \cdot \frac{1}{2\sqrt{1-121x^2}} \cdot (1-121x^2)' \\ &= \frac{1}{\sqrt{1-1+121x^2}} \cdot \frac{1}{2\sqrt{1-121x^2}} \cdot (-121 \cdot 2x) \\ &\xrightarrow{\sqrt{121x^2} = 11x} \frac{1}{11x} \cdot \frac{1}{\sqrt{1-121x^2}} \cdot (-121x) = -\frac{11}{\sqrt{1-121x^2}} \end{aligned}$$

$$\textcircled{3} \quad y = \operatorname{arctg} \sqrt{49x^2-1}, \quad y' = ?$$

$$y' = \frac{1}{1+(\sqrt{49x^2-1})^2} \cdot (\sqrt{49x^2-1})'$$



