

$$27. y = \sin^{-1}(x^2) \Rightarrow y' = \frac{1}{\sqrt{1-(x^2)^2}} \frac{d}{dx}(x^2) = \frac{2x}{\sqrt{1-x^4}}$$

$$28. y = (\sin^{-1} x)^2 \Rightarrow y' = 2(\sin^{-1} x) \frac{d}{dx}(\sin^{-1} x) \Rightarrow y' = \frac{2 \sin^{-1} x}{\sqrt{1-x^2}}$$

$$29. y = 2\sqrt{x} \tan^{-1} \sqrt{x} \Rightarrow$$

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

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

$$30. h(x) = \sqrt{1-x^2} \arcsin x \Rightarrow$$

$$h'(x) = \sqrt{1-x^2} \cdot \frac{1}{\sqrt{1-x^2}} + \arcsin x \left[\frac{1}{2}(1-x^2)^{-1/2}(-2x) \right] = 1 - \frac{x \arcsin x}{\sqrt{1-x^2}}$$

$$31. H(x) = (1+x^2) \arctan x \Rightarrow H'(x) = (1+x^2) \frac{1}{1+x^2} + (\arctan x)(2x) = 1 + 2x \arctan x$$