

$$51. y = x \arccos x - \sqrt{1-x^2}$$

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

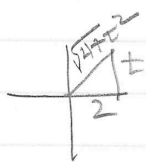
$$= -\frac{x}{\sqrt{1-x^2}} + \arccos x - \frac{1}{2\sqrt{1-x^2}}$$

$$= \frac{-2x-1}{2\sqrt{1-x^2}} + \arccos x$$

$$52. y = \ln(t^2+4) - \frac{1}{2} \arctan \frac{t}{2}$$

$$y = \arctan \frac{t}{2}$$

$$\tan y = \frac{t}{2}$$



$$= \frac{1}{2\sqrt{4+t^2}}$$

$$\sec^2 y \frac{dy}{dt} = \frac{1}{2}$$

$$\frac{dy}{dt} = \frac{1}{2 \sec^2 y} = \frac{2}{4+t^2}$$



$$f(x) = \ln(t^2+4) - \frac{1}{2} \arctan \frac{t}{2}$$

$$\frac{1}{t^2+4} \cdot 2t = \frac{1}{2} \left(\frac{2}{4+t^2} \right)$$

$$\frac{2t}{t^2+4} = \frac{1}{4+t^2}$$

$$\frac{2t-1}{t^2+4}$$



$$13. f(x) = \arcsin x - x$$

$$f'(x) = \frac{1}{\sqrt{1-x^2}} - 1$$

$$0 = \frac{1}{\sqrt{1-x^2}} - 1$$

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

multiply both sides by $\sqrt{1-x^2}$

$$1 = \sqrt{1-x^2}$$

$$x = 0$$