Exercise 22

Calculate y'.

$$y = \sec(1 + x^2)$$

Solution

Calculate y' by using the chain rule.

$$\begin{aligned} y' &= \frac{d}{dx}[\sec(1 + x^2)] \\ &= [\sec(1 + x^2)\tan(1 + x^2)] \cdot \frac{d}{dx}(1 + x^2) \\ &= \sec(1 + x^2)\tan(1 + x^2) \cdot (2x) \\ &= 2x\sec(1 + x^2)\tan(1 + x^2) \end{aligned}$$