$$(xy)^3 - y = x$$

$$x^3y^3 - y = x$$

$$x^3 \cdot 3y^2\frac{dy}{dx} + 3x^2y^3 - \frac{dy}{dx} = 1$$

$$3x^3y^2\frac{dy}{dx} - \frac{dy}{dx} = 1 - 3x^2y^3$$

$$\frac{dy}{dx}(3x^3y^2 - 1) = 1 - 3x^2y^3$$

$$\frac{dy}{dx} = \frac{1 - 3x^2y^3}{3x^3y^2 - 1}$$

$$\sin\sqrt{x} + \sqrt{\sin x}$$

$$\cos\sqrt{x} \cdot \tfrac{1}{2}x^{-1/2} + \tfrac{1}{2}(\sin x)^{-1/2} \cdot \cos x$$

$$\frac{\sqrt{x}}{\sqrt{x}}\frac{\cos\sqrt{x}}{2\sqrt{x}} + \frac{\cos x}{2\sqrt{\sin x}} \cdot \frac{\sqrt{\sin x}}{\sqrt{\sin x}}$$

$$\frac{\sqrt{x}\cos\sqrt{x}}{2x} + \frac{\cos x\sqrt{\sin x}}{2\sin x}$$

$$\tan(x+y) = x$$

$$\frac{\sin(x+y)}{\cos(x+y)} = x$$

$$\sin(x+y) = x\cos(x+y)$$

$$\cos(x+y)\left(1+\frac{dy}{dx}\right) = 1\cdot\cos(x+y) - x\cdot\sin(x+y)\left(1+\frac{dy}{dx}\right)$$

$$\cos(x+y) + \cos(x+y)\frac{dy}{dx} = \cos(x+y) - x\sin(x+y) - x\sin(x+y)\frac{dy}{dx}$$

$$\cos(x+y)\frac{dy}{dx} + x\sin(x+y)\frac{dy}{dx} = \cancel{\cos(x+y) - \cos(x+y)} - x\sin(x+y)$$

$$\frac{dy}{dx}\left(\cos(x+y) + x\sin(x+y)\right) = -x\sin(x+y)$$

$$\frac{dy}{dx} = \frac{-x\sin(x+y)}{\cos(x+y) + x\sin(x+y)}$$