```
Exit[]

$Assumptions = a >= 0 && b >= 0
```

a ≥ 0 && b ≥ 0

$$y[x\_] := x \, \text{Sqrt}\left[1 - \cfrac{1}{\text{Log}\left[\frac{x}{a}\right] + \cfrac{1}{1-(b/a)^2}}\right]$$

$$\text{Simplify}\left[D[y[x], x] - \frac{1}{2}\left(\frac{x}{y[x]} + \left(\frac{y[x]}{x}\right)^3\right)\right]$$

0

```
Simplify[y[a] - b]
```

0