$$gxx = -1 - \frac{x^2}{r^2}\cdot\left(\frac{2\cdot m}{r - 2m}\right)$$

$$gtt = 1 - \frac{2\cdot m}{r}$$

$$c(r) = \sqrt{\frac{-gtt}{gxx}}$$

$$c(r) := \sqrt{\frac{1 - \frac{2\cdot m}{r}}{1 + \frac{x^2}{r^2}\cdot\left(\frac{2\cdot m}{r - 2m}\right)}}$$

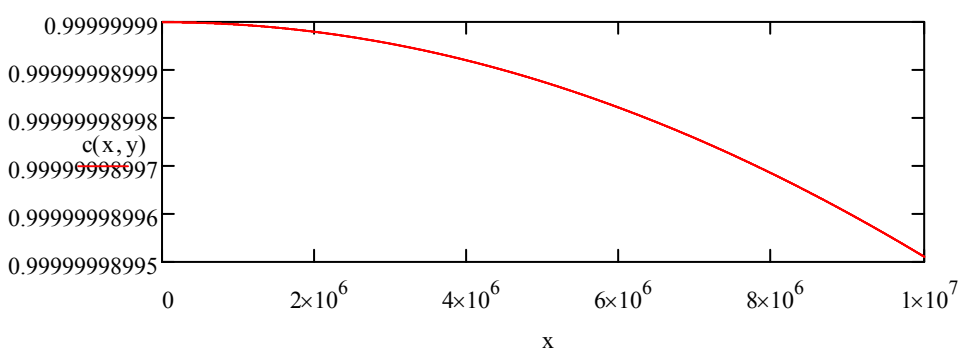
$$x^2 + y^2 = r^2$$

$$r = \sqrt{x^2 + y^2}$$

$m := 1$

$$c(x,y) := \sqrt{\frac{1 - \frac{2\cdot m}{\sqrt{x^2 + y^2}}}{1 + \frac{x^2}{x^2 + y^2}\cdot\left(\frac{2\cdot m}{\sqrt{x^2 + y^2} - 2m}\right)}} \qquad c\left(0, 10^1\right) = 0.894$$

$x := 0, 1000 .. 10000000 \qquad y := 10^8$



$$dcdy(x,y) := \frac{\left[\frac{4\cdot m\cdot x^2\cdot y}{\left(\sqrt{x^2 + y^2} - 2\cdot m\right)\cdot\left(x^2 + y^2\right)^2} + \frac{2\cdot m\cdot x^2\cdot y}{\left(\sqrt{x^2 + y^2} - 2\cdot m\right)^2\cdot\left(x^2 + y^2\right)^{\frac{3}{2}}}\right]\cdot\left(\frac{2\cdot m}{\sqrt{x^2 + y^2}} - 1\right)}{\left[\frac{2\cdot m\cdot x^2}{\left(\sqrt{x^2 + y^2} - 2\cdot m\right)\cdot\left(x^2 + y^2\right)} + 1\right]^2} - \frac{2\cdot m\cdot y}{\left[\frac{2\cdot m\cdot x^2}{\left(\sqrt{x^2 + y^2} - 2\cdot m\right)\cdot\left(x^2 + y^2\right)} + 1\right]\cdot\left(x^2 + y^2\right)^{\frac{3}{2}}}$$
$$2\cdot\sqrt{-\frac{\frac{2\cdot m}{\sqrt{x^2 + y^2}} - 1}{\frac{2\cdot m\cdot x^2}{\left(\sqrt{x^2 + y^2} - 2\cdot m\right)\cdot\left(x^2 + y^2\right)} + 1}}$$