

$$\int \frac{\arcsin \sqrt{x}}{\sqrt{x}} dx$$

$$= \left| \begin{array}{l} \sqrt{x} = t \\ x = t^2 \\ \downarrow \quad \downarrow \\ dx = 2t dt \end{array} \right| = \int \frac{\arcsin t}{t} 2t dt = \int 2 \arcsin t dt = \left| \begin{array}{l} u = 2 \\ v = \arcsin t \\ u' = 2 \\ v' = \frac{1}{\sqrt{1-t^2}} \end{array} \right| =$$

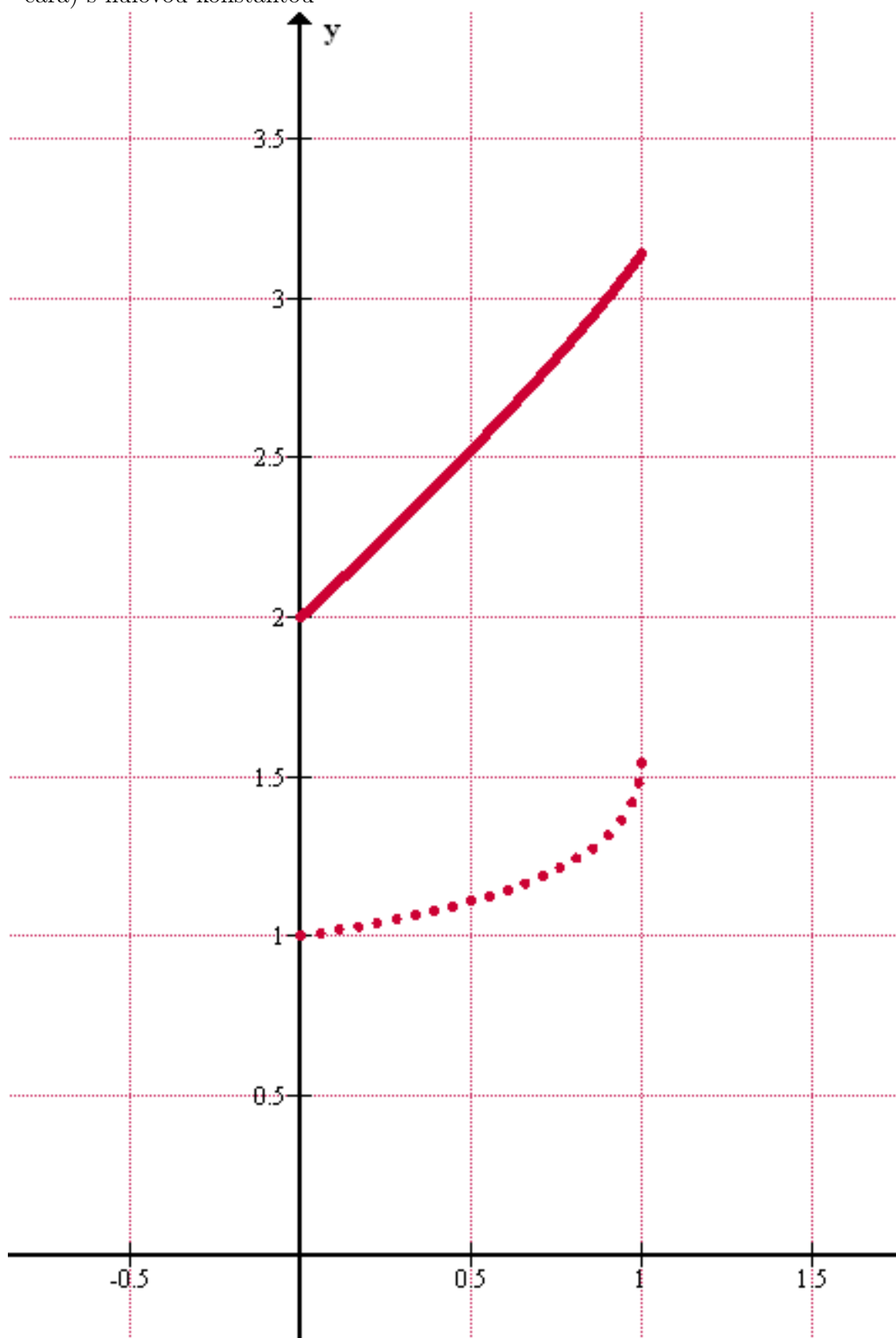
$$= 2t \arcsin t - \int \frac{2t}{\sqrt{1-t^2}} dt = 2t \arcsin t - \left| \begin{array}{l} \sqrt{1-t^2} = z \\ 1-t^2 = z^2 \\ -2t dt = 2z dz \\ t dt = -z dz \end{array} \right| =$$

$$= 2t \arcsin t + \int \frac{2z dz}{z} = 2t \arcsin t + 2 \int dz = \underline{2t \arcsin t + 2z + c}$$

Substituce zpět:

$$2\sqrt{x} \arcsin \sqrt{x} + 2\sqrt{1-x} + c$$

OBRÁZEK 1. Grafické znázornění funkce (tečkovaná) a jejího integrálu (plná čára) s nulovou konstantou



Zdroj: program Graph