

**Zadatak 28.** Odredi površinu lika omeđenog krivuljom  $y = \frac{2}{|x-1|+2}$ , tangentom na tu krivulju u njezinoj točki s apscisom  $x = 2$  i pravcem  $x - 1 = 0$ .

*Rješenje.*

$$y(2) = \frac{2}{|2-1|+2} = \frac{2}{3}.$$

$$y' = \left( \frac{2}{x-1+2} \right)' = \left( \frac{2}{x+1} \right)' = -\frac{2}{(x+1)^2} \implies y'(2) = -\frac{2}{9}.$$

$$\text{Tangenta je } y - \frac{2}{3} = -\frac{2}{9}(x-2) \implies y = -\frac{2}{9}x + \frac{4}{9} + \frac{6}{9} \implies y = -\frac{2}{9}x + \frac{10}{9}.$$

$$P = \int_1^2 \left( \frac{2}{x+1} + \frac{2}{9}x - \frac{10}{9} \right) dx = \int_1^2 \frac{2}{x+1} dx + \frac{2}{9} \cdot \frac{x^2}{2} \Big|_1^2 - \frac{10}{9}x \Big|_1^2 = 2 \ln|x+1| \Big|_1^2 + \frac{1}{9}(4-1) - \frac{10}{9} = 2(\ln 3 - \ln 2) + \frac{3}{9} - \frac{10}{9} = 2 \ln \frac{3}{2} - \frac{7}{9}.$$

