

Soluție

1.a) $f'(x) = 1 + \frac{1}{2\sqrt{x}}.$

b) $f'(x) > 0$ oricare ar fi $x > 0 \Rightarrow f$ crescătoare.

c) $f'(x) = \frac{3}{2} \Leftrightarrow 1 + \frac{1}{2\sqrt{x}} = \frac{3}{2} \Rightarrow x = 1; f(1) = 2 \Rightarrow A(1, 2).$

2.a) $\frac{2x+3}{x^2+3x+2} = \frac{1}{x+1} + \frac{1}{x+2}.$

b) $\int_0^1 f(x) dx = \ln[(x+1) \cdot (x+2)] \Big|_0^1 = \ln 3.$

c) $h(x) = -\frac{1}{x+3} \Rightarrow V = \pi \int_0^1 \frac{1}{(x+3)^2} dx = \pi \cdot \frac{-1}{x+3} \Big|_0^1 = \frac{\pi}{12}.$