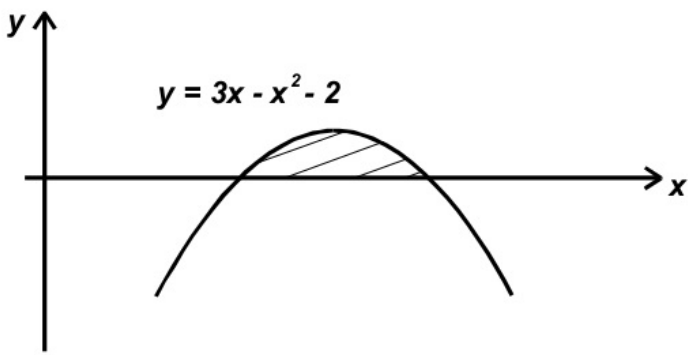
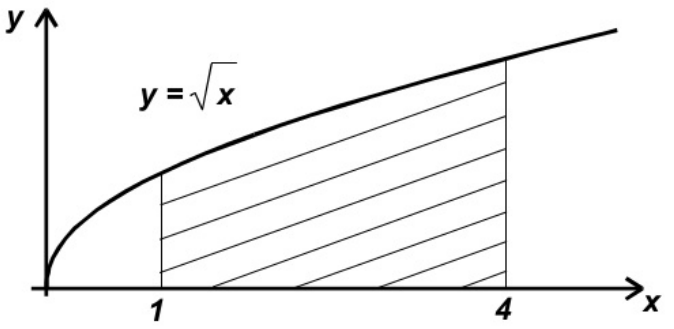
1. Calcule, em cada caso, a área indicada:

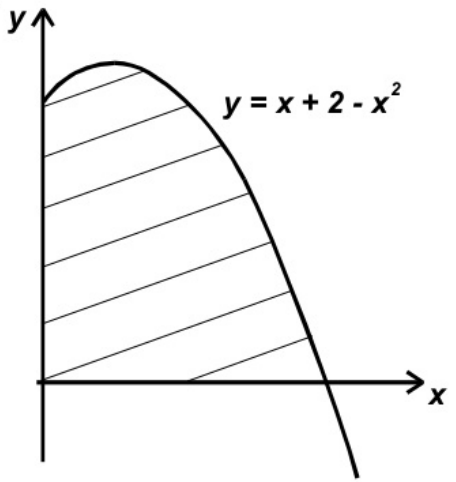
a)



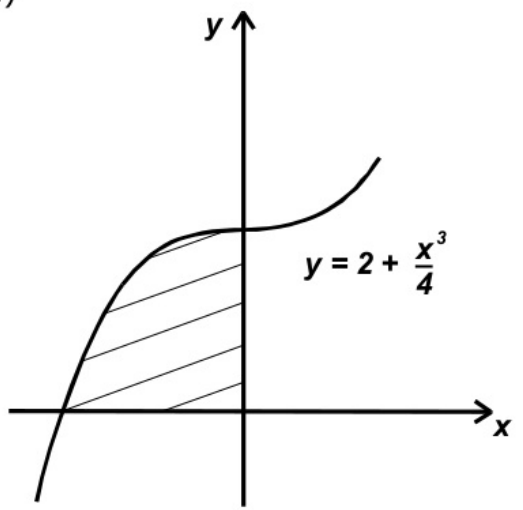
b)



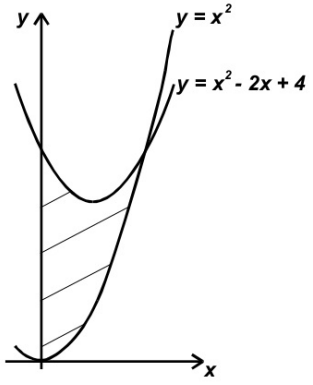
c)



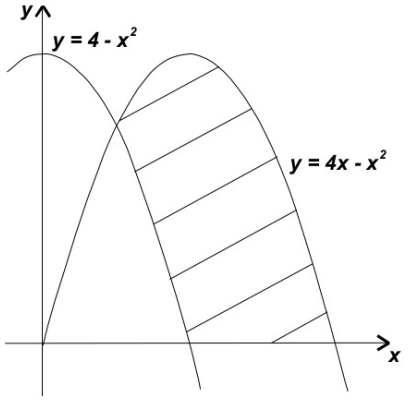
d)



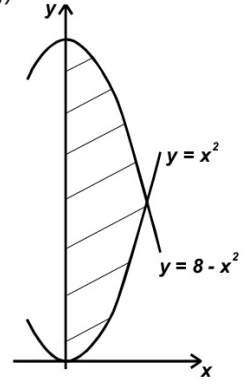
e)


y
x
y = x²
y = x² - 2x + 4

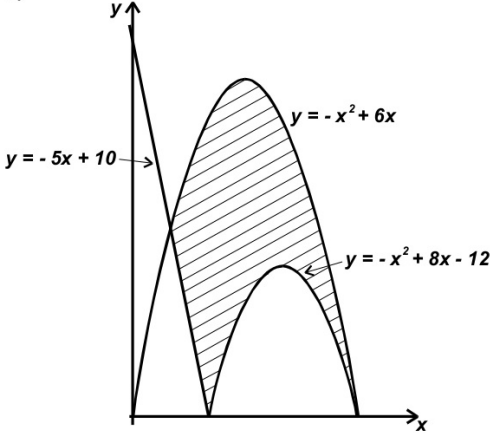
f)


y
x
y = 4 - x²
y = 4x - x²

g)


y
x
y = x²
y = 8 - x²

h)


y
x
y = - x² + 6x
y = - 5x + 10
y = - x² + 8x - 12

2. Determine a diferencial de cada função a seguir:

a) $u = 3x + 5$ b) $y = 3t^2 - 5t + 6$ c) $u = \ln x$

3. Calcule as seguintes integrais indefinidas:

a) $\int \frac{3x^8 + 5x^3 - 9x^2 + 7}{x^4}\, dx$ b) $\int \frac{2x+3}{\sqrt{1-x^2}}\, dx$

c) $\int (e^{3x} + 7\cos(5x))\, dx$ d) $\int (-6x+1)(-3x^2 + x - 1)^{\frac{5}{3}}\, dx$

e) $\int \frac{2 + (\ln x)^3}{x} dx$ f) $\int \frac{3x+5}{1+x^2}\, dx$

4. Calcule as seguintes integrais definidas:

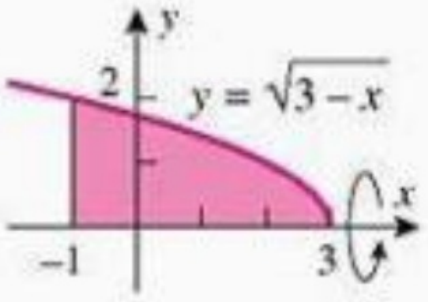
a) $\int_1^4 (x^2 - 4x)\, dx$. b) $\int_1^3 x\sqrt{x}\, dx$ c) $\int_{-3}^3 \frac{x^3}{x^4 + x^2 + 1}\, dx$

d) $\int_e^{e^4} \frac{1}{v\sqrt{\ln v}}\, dv$ e) $\int_1^2 u\sqrt{u-1}\, du$ f) $\int_0^{\pi/3} \frac{\operatorname{sen}\theta}{\cos^2\theta}\, d\theta$

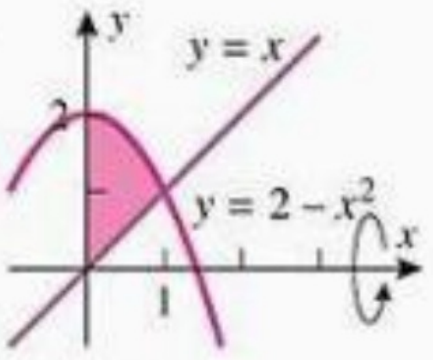
g) $\int_{-1}^1 x\sqrt[3]{x^2 + 4}\, dx$ h) $\int_2^3 \frac{2x-1}{x^2 - x + 5} dx$ i) $\int_0^1 \frac{2x-1}{(x^2 - x + 5)^3} dx$

1-4 Encontre o volume do sólido que resulta quando a região sombreada gira em torno do eixo indicado.

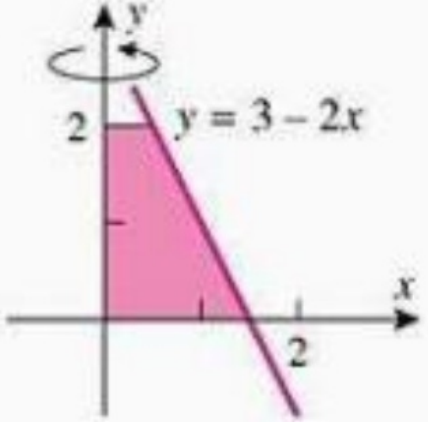
1.



2.



3.



4.