Definite integral

Newton´s definite integral:

$$\int_a^b f(x)dx = F(b) - F(a)$$

In the definition above, F is a primitive function to f,
and *a* and *b* are the limits of the integral.

The result of definite integral is not a function, but a number!

Problems to solve - 1

Find: $\int_0^4 x^3 dx$

$\int_1^4 \left(6x^2 + 4x - 1\right) dx$

$\int_{-3}^3 \left(x^3 - x\right) dx$

$\int_1^e \frac{2}{x} dx$

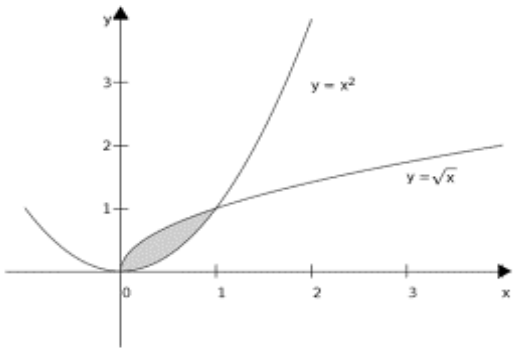
$\int_0^\pi \sin x dx$

An area between two curves

Let f(x) and h(x) be two curves, *S* an area between them. And *a* and *b* their intersections.
Then *S* is given as follows:

$$S = \int_a^b \big(h(x) - f(x)\big)\,dx$$

1) Find an are between two curves: $y = \sqrt{x}$ and $y = x^2$.



2) Find an are between two curves: $y = 2x$ and $y = x^2$.