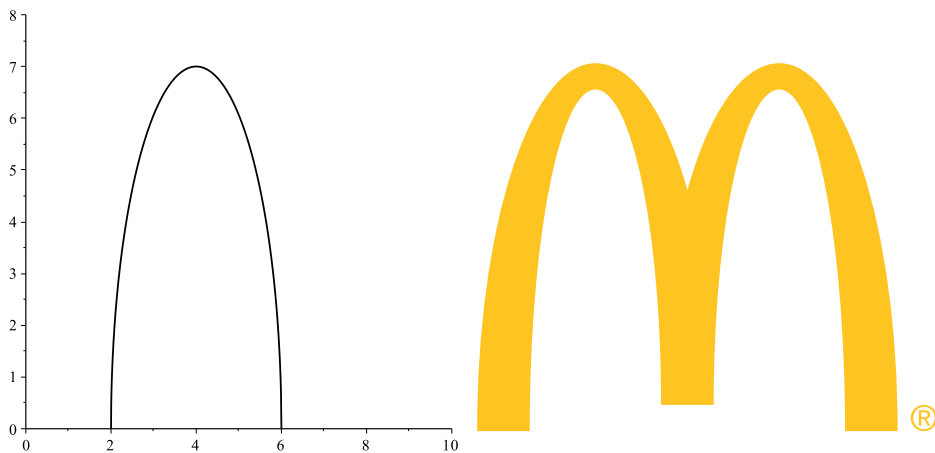


Example 1. The function $f(x) = \frac{7}{2}\sqrt{-x^2 + 8x - 12}$ does a reasonably good job modelling the shape of one McDonaldsGolden Arch



Find the area under one arch by using the function $f(x)$, an integral, and your calculator.

Example 2. The graph of $f(x)$ consists of straight lines and a semicircle, shown below.

(a) Find $\int_0^2 f(x) dx$ exactly.

(c) Find $\int_0^7 f(x) dx$ exactly.

(b) Find $\int_2^6 f(x) dx$ exactly.

(d) Find $\int_0^{10} f(x) dx$ exactly.

