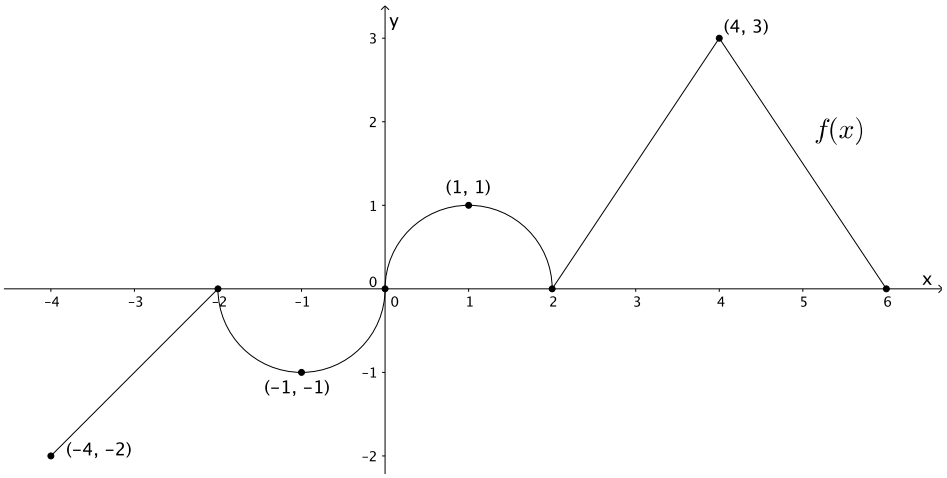
Piece by Piece

Define $F(x) = \int_{-2}^{x} f(t)\,dt$, where the graph of $y = f(x)$, show below, is comprised of line segments and semicircles.



1. Find all zeros of $F(x)$.

2. What is $F(-4)$?

3. Identify all open intervals where $F(x)$ is increasing.

4. Identify all open intervals where $F(x)$ is concave down.

5. Identify all local extrema of $F(x)$. Where are its absolute maximum and minimum?