Problem 9

The notation $\max\{a, b, \ldots\}$ means the largest of the numbers $a, b, \ldots$. Sketch the graph of each function.

(a) $f(x) = \max\{x, 1/x\}$

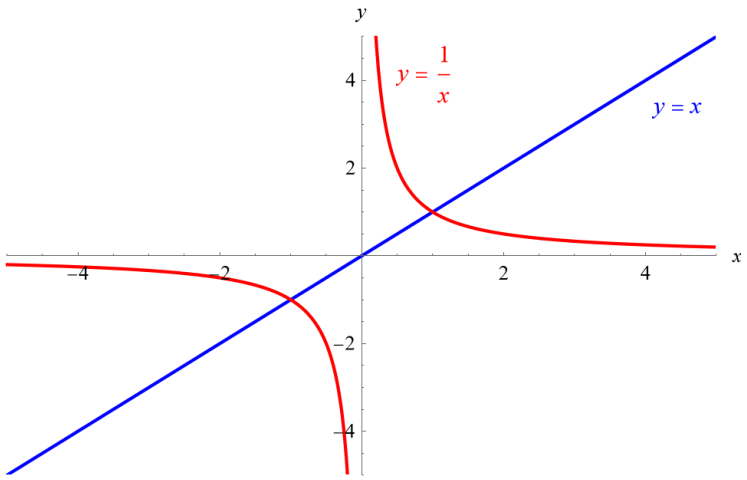
(b) $f(x) = \max\{\sin x, \cos x\}$

(c) $f(x) = \max\{x^2, 2 + x, 2 - x\}$

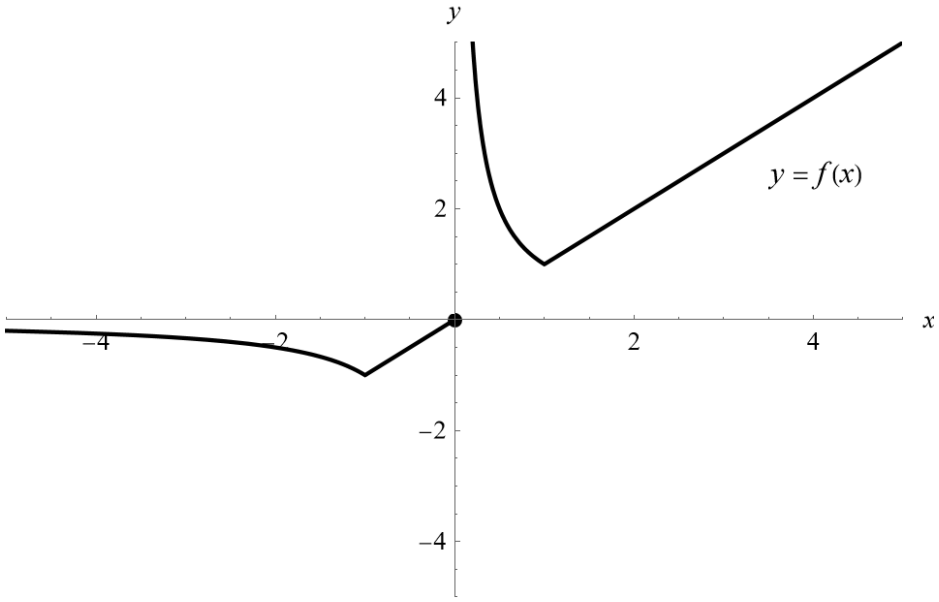
Solution

Part (a)

Below is a graph of the two functions.

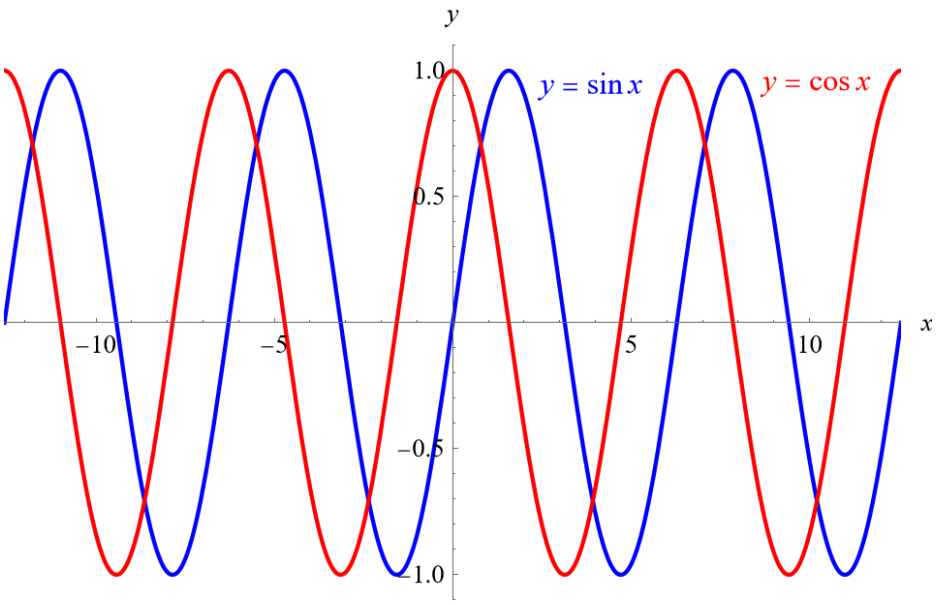


The maximum of these two functions is shown below.

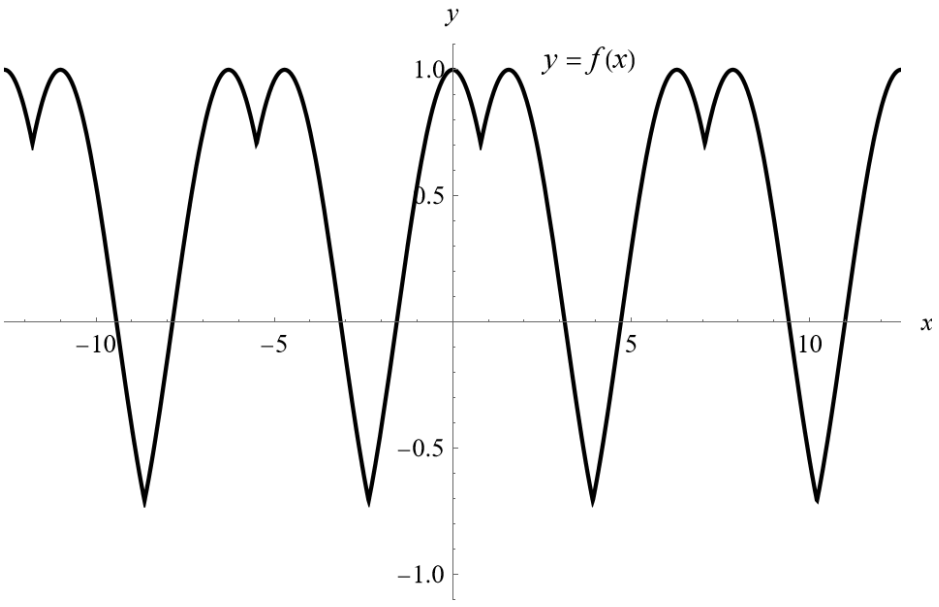


Part (b)

Below is a graph of the two functions.

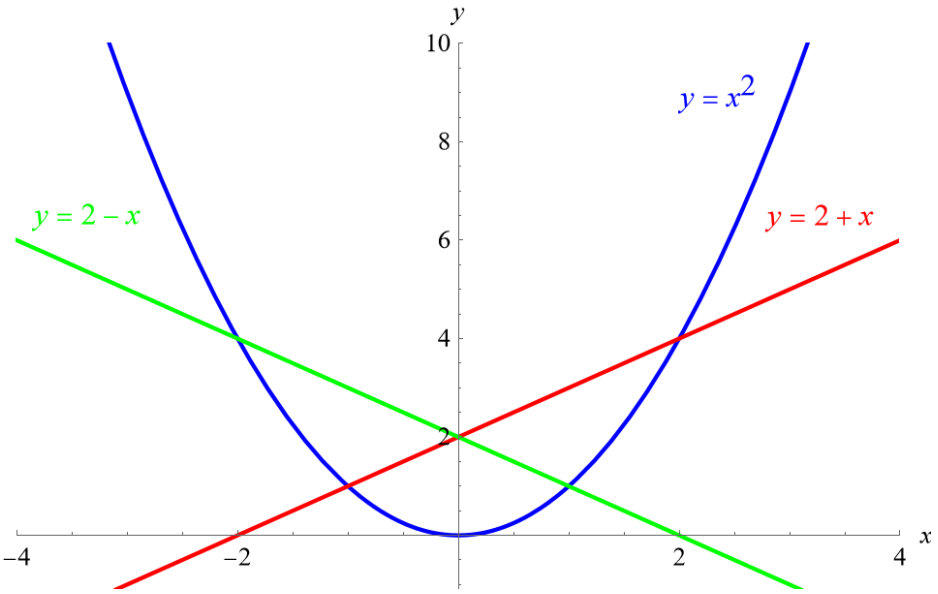


The maximum of these two functions is shown below.



Part (c)

Below is a graph of the three functions.



The maximum of these three functions is shown below.