HW 1

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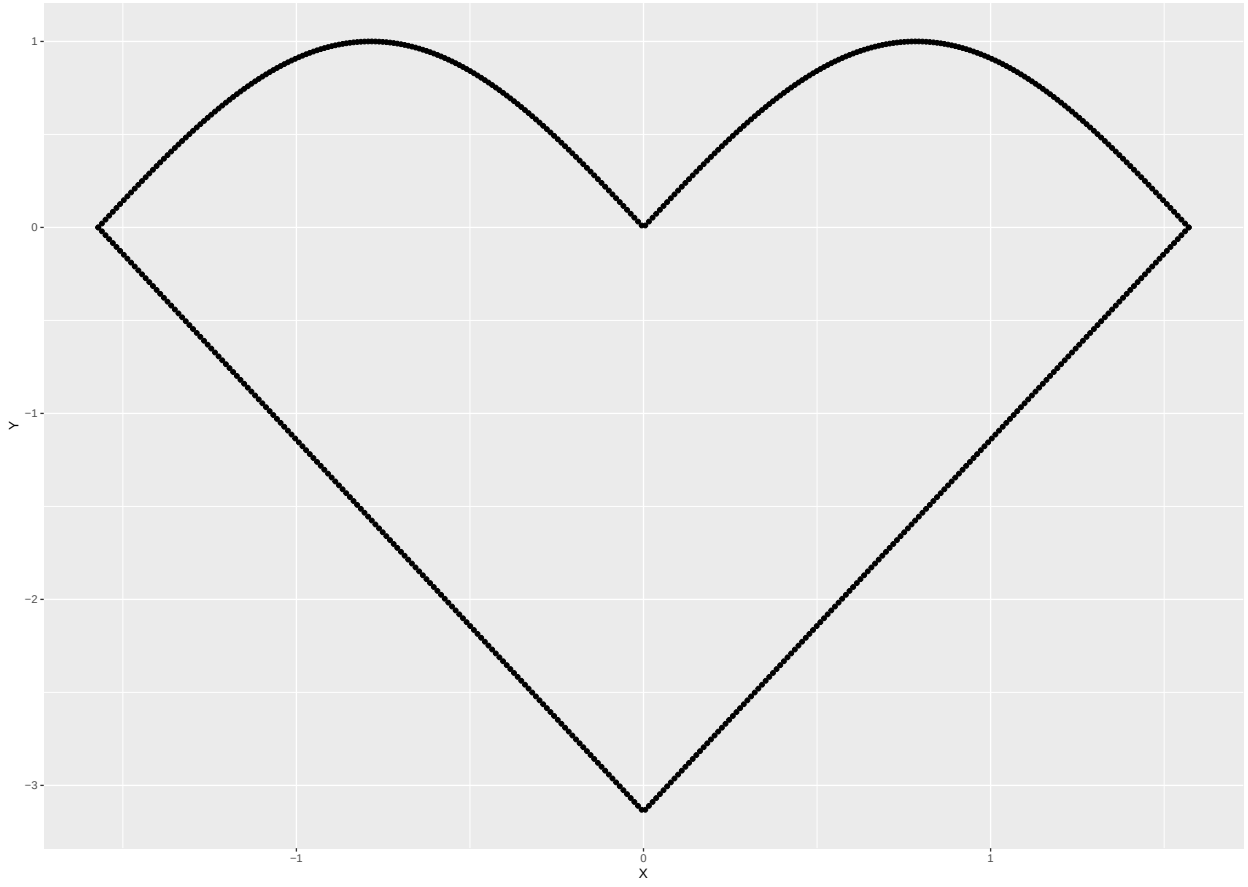
```
library(ggplot2)
```

Task: find the area of a figure bounded by curves given by the equation:

$$y = 2|x| - \pi, x \in [-\frac{pi}{2}, \frac{pi}{2}]$$

$$y = |sin(2x)|, x \in [-\frac{pi}{2}, \frac{pi}{2}]$$

This is a graphical representation of the equations:



```r
n <- 100000
hits <- 0
for (i in seq(1,n)) {
  x <- runif(1,-pi/2,pi/2)
  y <- runif(1,-pi,2)
  if (y >= 2*abs(x)-pi && y <= abs(sin(2*x))){
    hits <- hits + 1
  }
}
percentage=hits/n

cat("Area of shape is", pi*(pi+2)*percentage)
```

```
## Area of shape is 6.95733
```