hw0

Exercises

(1) Write a Quarto document that defines variables $a = 1, b = -1, c = -2$ and print out the solutions to $f(x) = ax^2 + bx + c = 0$. Do not report complex solutions, only real numbers.

```
# define the variable
a <- 1
b <- 3
c <- 2

# calculate the solution
solution1 <- (-b + sqrt(b^2 - 4*a*c)) / (2*a)
solution2 <- (-b - sqrt(b^2 - 4*a*c)) / (2*a)

#| print the results
print(solution1)
```

```
[1] -1
```

```
print(solution2)
```

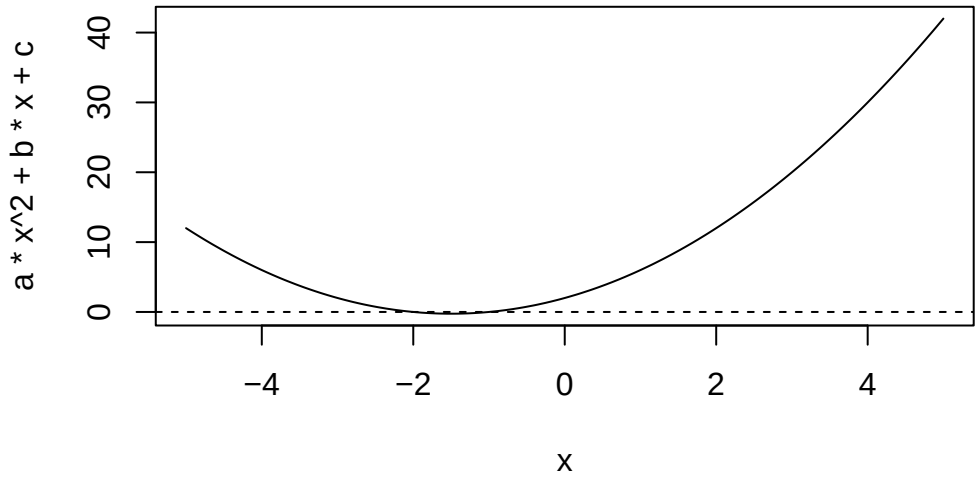
```
[1] -2
```

(2) Include a graph of $f(x)$ versus x for $x \in (-5, 5)$.

This is how you make a plot of a quadratic function:

```
a <- 1
b <- 3
```

```r
c <- 2
x <- seq(-5, 5, length = 300)
plot(x, a*x^2 + b*x + c, type = "l")
abline(h = 0, lty = 2)
```



(3) Generate a PDF report using knitr. Do not show the R code, only the solutions and explanations of what the reader is seeing.

(4) Erase the PDF report and reproduce it but this time using $a = 1, b = 2, c = 5$.

(5) Erase the PDF report and reproduce it but this time using $a = 1, b = 3, c = 2$.

(6) Create an HTML page with the results for this last set of values, but this time showing the code.