PSC205A Assignment 01: Matrix Algebra

```
matrix2latex <- function(matr) {

printmrow <- function(x) {

    cat(cat(x,sep=" & "),"\\\\ \n")
}

cat("\\begin{bmatrix}","\n")
body <- apply(matr,1,printmrow)
cat("\\end{bmatrix}")
}
```

Q1 Compute A + B

```
A <- matrix(
  c(1,    4,   2,
    2,    0,  -5,
    -1,   2,   1,
    0,    1,    2
  ), nrow = 3, ncol=4)

B <- matrix(
  c(3, 1, 2,
    -4, 5, -1,
    1, 0, 3,
    2, 3, -1), nrow=3, ncol=4
)

A + B
```

```
     [,1] [,2] [,3] [,4]
[1,]    4   -2    0    2
[2,]    5    5    2    4
[3,]    4   -6    4    1
```

Q2 Find H such that A + B - H = 0

$$\mathrm{A} + \mathrm{B} - \mathrm{H} = 0$$
$$\mathrm{A} + \mathrm{B} - \mathrm{H} + \mathrm{H} = 0 + \mathrm{H}$$
$$\mathrm{A} + \mathrm{B} = \mathrm{H}$$

```
A <- matrix(
  c(1, 3, 5,
    2, 4, 6
  ), 3, 2
)

B <- matrix(c(
  -3, 1, 4,
  -2, -5, 3
),3, 2)

H <- A + B
matrix2latex(H)
```

```
\begin{bmatrix}
-2 & 0 \\
4 & -1 \\
9 & 9 \\
\end{bmatrix}
```