STAT 408: Midterm Exam
Name:

There are a total of 8 question. You only need to answer 7 of them. Put an **X** through the question you don't want graded. If you answer all of the questions, Q8 will not be graded.

Code interpretation

For questions 1 - 3 use the following data frame (called `snow`) and interpret the code. For full credit (and partial credit), write what the code will return along with justification for your answer.

ski_hill	pass	acres	vertical
Vail	Epic	5317	3450
Park City	Epic	7300	3226
Big Sky	Ikon	5800	4336
Jackson Hole	Ikon	2500	4139
Taos	Ikon	1294	3281
Bridger Bowl	Powder Alliance	2000	2600
Loveland	Powder Alliance	1800	2210

1. (4 points)

```
library(tidyverse)
snow %>% group_by(pass) %>% summarize(min_size = min(acres)) %>% arrange(min_size)
```

2. (4 points)

```
for (i in 1:5){
  print(snow$ski_hill[i])
    if (snow$pass[i] == 'Ikon'){
      print("is on the Ikon pass")
    } else {
      print("is not on the Ikon pass")
    }
}
```

3. (4 points)

```
snow %>% ggplot(aes(y = vertical, x = acres, shape = pass)) +
  geom_point() + ggtitle('Vertical vs. Skiable Acres')
```

4. (4 points)

```
ifelse(snow[,3] > 5000 | snow[,4] > 4000,
       "The mountain is big or steep",
       "The mountain is not big or steep")
```

For questions 5 and 6 use the `snow` data frame and the `ticket_price` data frame (below).

ski_hill	pass_cost
Big Sky	1,699
Bridger Bowl	900
Discovery	525

5. (4 points)

```
snow %>% inner_join(ticket_price, by = "ski_hill")
```

6. (4 points)

```
library(stringr)
ticket_price %>% mutate(cost = str_replace(pass_cost, ',', ''))
```

7. (4 points)

Describe at least two principles of good data visualization and include a sketch to demonstrate - you will not be graded on your artistic ability, but keep it neat.

8. (4 points)

Finish the function. Either code or prose is acceptable.

```
flip_coin <- function(num_flips){
  # Function to simulate flipping a fair coin
  # ARGS: num_flips - number of times to flip coin
  # RETURNS: vector of coin flips containing "H" or "T"









}
```