MAT 118 Spring 2017
**Homework #1**
Due Friday, 2/3/17 in class

*Please show all of the steps you take to solve the problems.*

Problems from the text: 1.1.4, 1.2.12, 1.3.22, 1.4.32, 1.5.42

In addition to those problems, please answer the following questions.

On the next page are the results for the mock election that was held in class. This election will determine our class mascot.

A. Which candidate wins using the plurality method?

B. Write down a preference schedule for this election using the ballot counts provided.

C. Apply the Borda count method, and list the candidates by their final rankings.

D. Apply the purality-with-elimination method, and write down the winner.

E. Finally, apply the method of pairwise comparisons to rank the candidates.

F. Was there a Condorcet candidate?

G. When applying the four different voting methods above, are any of the four fairness criteria violated *in this election*?

# Results for the Mock Election

| Dog | 1 |
|---|---|
| Cat | 2 |
| Turtle | 3 |

x 12

| Dog | 1 |
|---|---|
| Cat | 3 |
| Turtle | 2 |

x 18

| Dog | 2 |
|---|---|
| Cat | 1 |
| Turtle | 3 |

x 4

| Dog | 2 |
|---|---|
| Cat | 3 |
| Turtle | 1 |

x 10

| Dog | 3 |
|---|---|
| Cat | 1 |
| Turtle | 2 |

x 4

| Dog | 3 |
|---|---|
| Cat | 2 |
| Turtle | 1 |

x 3

( 51 ballots were filled out )