Math F113X: Homework Set 5

- Start with the *introductory problems*, Problems A and B (below)
- Then, complete the problems from the Graph Theory section: # 2, 3, 4, 9, 10, 26, 33ab, 34a
- Answer the following **reflection question**: What did you learn from checking your homework answers against the provided solutions?

Problem A: Use the drawing of Graph A (in box) to answer the questions.



- 1. How many vertices does Graph A have?
- 2. How many edges does Graph A have?
- 3. What is the degree of vertex a? Vertex e? Vertex j?
- 4. For each sequence of vertices, determine if

it is a **path**, a **circuit**, or **neither**.

- (a) abc
- (b) abca
- (c) acid
- (d) *id*
- (e) gfedie
- (f) gedh
- (g) a
- 5. Is Graph A connected? Justify your conclusion.

Problem B: Which of the graphs below are **connected**? Which contain **circuits**? Determine the vertices of **highest** degree and those of **lowest** degree.



Remember to write up your homework solutions according to the homework writeup guidelines.

Homework is graded using the following rubric for each problem (or problem part):

2 points: You provided a complete answer, with supporting work, written up clearly

1 point: Some attempt at a solution, but incomplete writeup / unclear / illegible / no answer

1 point: Only an answer, with no supporting work

0 points: Missing.

After you do the homework, you need to check your answers against the solutions! Then figure out your errors (if any) and revise your homework before you submit it. Finally, answer the reflection question.

Homework must be submitted on Gradescope.