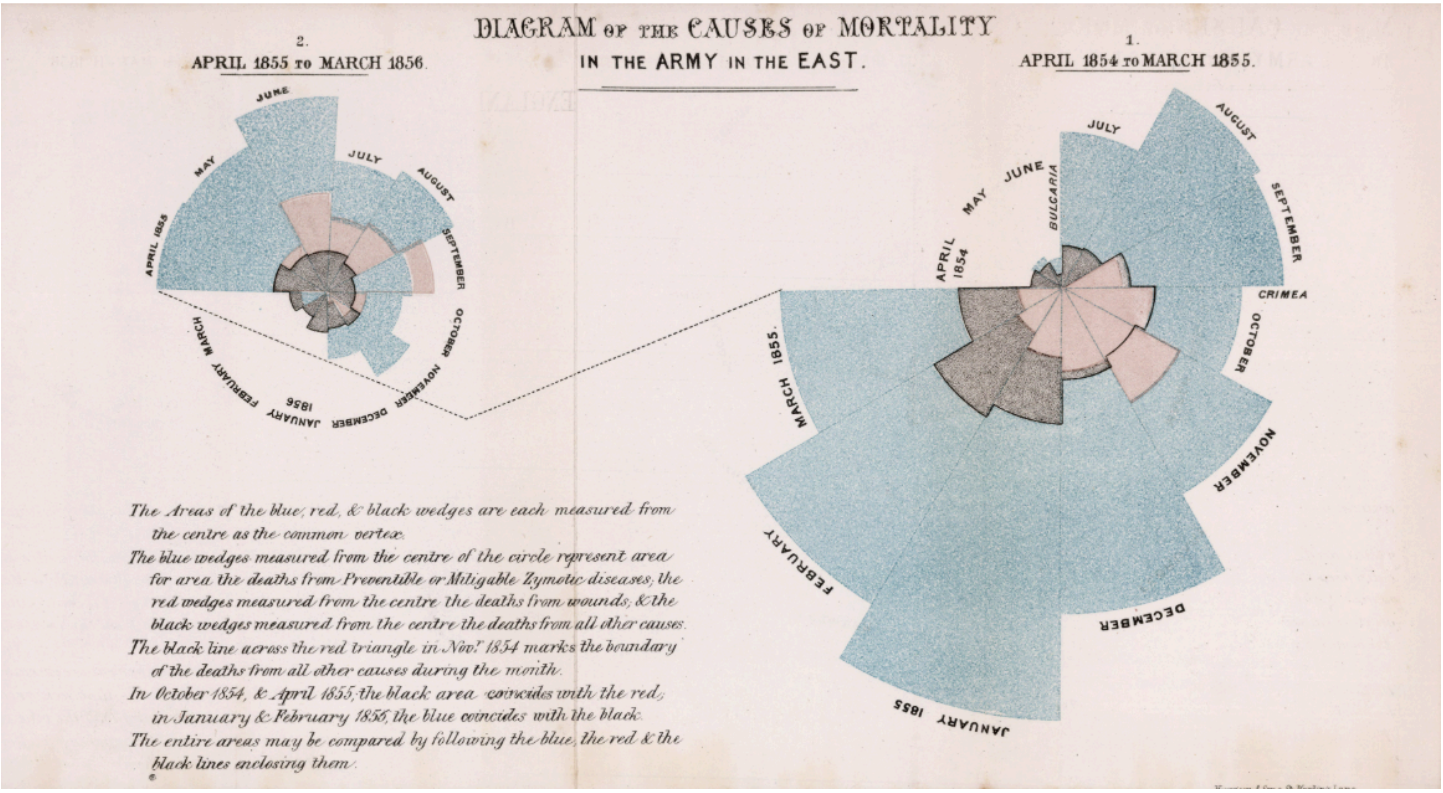
Problem Set 1: Florence Nightingale
TCE 265 — Spring 2026
30 points | Due: Mon, 2/16 at 11:59pm

Name: _____
Name: _____
Name: _____

Part 1: The Math — Analyzing Rose Diagrams (Th1)

Purpose: Practice analyzing an unfamiliar data visualization. Notice what works, what confuses, and how design choices affect understanding.

Florence Nightingale created this chart in 1858 to illustrate causes of mortality in the British Army during the Crimean War.



Nightingale Rose Diagram

High-resolution version

(a) Group Synthesis (~150-200 words)
What story is this diagram telling? What's effective about it? What's confusing? What would you change for a modern audience?

(b) Commentary (~75-100 words)
What did comparing your individual analyses reveal? What did someone else notice that you missed?

Part 2: The Story — Research via NotebookLM (T2)

Purpose: Use AI-assisted research to go deeper than a quick Google search. Find the human story behind the math—details that would resonate with young learners.

Your NotebookLM notebook should include these sources: - Florence Nightingale biography (Wikipedia) - Hugh Small's analysis of the rose diagram (video transcript) - Magnello, "Victorian vital and mathematical statistics" (academic article) - Scientific American: "How Florence Nightingale Changed Data Visualization Forever" - *A Picture Book of Florence Nightingale* by David A. Adler (2019)

(a) Key Findings (~250-300 words)
What are the most important things you learned about Nightingale's life, work, and impact?

(b) Surprising Quotes/Facts
List 2-3 items that surprised you or would hook young learners:

(c) NotebookLM Reflection (~75-100 words)
How did you use NotebookLM? What features helped? What didn't work as expected?

Part 3: The Teaching — 5 Classroom Ideas (T2)

Purpose: Generate creative, concrete ideas for bringing Nightingale into a math classroom. Quantity over perfection—you're brainstorming, not lesson planning.

Brainstorm 5 teaching materials or experiences connecting Nightingale to grades 4-9 math. Choose from **5 different categories**:

1. Worksheet
2. Data Investigation
3. Interactive Tech Activity (Desmos, GeoGebra, spreadsheet)
4. 3-Act Task
5. Card Sort / Matching Game
6. Discussion Prompt
7. Visual Display
8. Read-Aloud Connection
9. Cross-Curricular Link
10. Assessment / Exit Ticket

For each idea: category, brief description (~50-75 words), and target grade band (4-5, 6-7, or 8-9).

(a) Idea 1

(b) Idea 2:

(c) Idea 3:

(d) Idea 4:

(e) Idea 5:

Part 4: Reflection — After GROUPSHARE (Th2)

Purpose: Step back and consider what you learned—from feedback, from your own work, and from your peers. This is where the learning solidifies.

Answer each prompt in ~50-75 words.

(a) What feedback did your triad receive during GROUPSHARE?

(b) Which of your 5 ideas got the strongest response? Why do you think so?

(c) If you had another week, which idea would you develop into a full lesson? Why that one?

(d) What did you learn from another triad's presentation?