

Study Guide for Final Exam, Math 125

(The final exam will be on Friday, May 23, and covers material from Chapters 3–5, 8–11, 13–15, 17, 18, 20, 21, 23, 24, 26, 28, and 29.)

Math 125 Kovitz Spring 2025

- **The Histogram.**

Chapters 3.1 and 3.3: pgs. 31–33 and 38–41; example 1, pg. 40; boxes on pgs. 32, 40, and 41; pages 41 and 42, problems 1 and 4; page 52, problem 5.

- **The Average and the Standard Deviation.**

Chapters 4.2 and 4.6, pages 58 to 60 and pages 71 to 72: example 2 on page 72; boxes on pages 59 and 71; pages 72–73, problems 1 and 5 (a); page 74, problem 1 (a); page 82, problems 1(a) and 2(a); summary on page 76: point 2.

- **The Normal Approximation for Data.**

Chapters 5.1 to 5.5, pages 78 to 92: example 1 on page 80, example 4 on page 83, example 8 on pages 85 and 86; example 10 on pages 90 and 91; box on page 79; page 82, problems 1 (a) and 2; page 84, problem 1 (e); page 88, problem 1(b); page 92, problem 2; page 95, problem 7 (b); summary on page 96: points 2 and 4.

- **Computing the Correlation Coefficient.**

Chapter 8.4, pages 132 and 133: example 1; page 134, problem 1 in exercise set D; page 137, problem 9.

- **The Regression Method.**

Chapters 10.1, 10.3, and 10.4, pages 158 to 161, and pages 165 to 173: example 1 on pages 165 to 166; both boxes on page 160; box on page 169; page 161, problems 1, 2 (a), 2 (b), and 4; page 167, problem 1 (a); page 176, problems 2 (b), 3(a), 4 (a), and 4 (b); page 199, problem 7; page 568, problem 10; summary on page 178: point 1.

- **The R.M.S. Error for Regression.**

Chapters 11.1 and 11.2, pages 180 to 187; page 193, problems 1 (a), 2 (a), 3 (a); page 198, Review Exercises 1 and 3 (3 at the bottom of the page).

- **The Regression Line.**

Chapter 12.1, pages 202 to middle of page 205 *Do not use the solutions from the text; that is a confusing method.*; pages 213–4, problems 1 and 2.

- **What Are the Chances?**

Chapter 13.1, pages 221 to 223 (top); chapters 13.2 to 13.4, pages 226 to 232; examples 2 to 6, pages 226 to 229; page 226, problem 3; pages 229 and 230, problems 1, 3, and 7; boxes on pages 229 to 232; page 235, problems 4, 6 (b), 8, and 9; page 236, summary points 4 through 9.

- **More About Chance: The Addition Rule.**

Chapters 14.2 and 14.3, pages 241 to 246: examples 3 through 6; page 247, problems 2, 3 (d), 4 (b), 4 (f), and 5 (c); both boxes on page 241; summary on page 254, point 2.

- **The Binomial Formula.**

Chapter 15.2, pages 259 to 261; example 1; box on page 259; page 261, problems 1 and 2; page 268, problem 20; summary on page 268, point 2.

- **The Expected Value and Standard Error (for the sum).**

Chapters 17.1 to 17.5, pages 288 to 303; boxes on pages 289, 291, 298, and 301; page 290, problems 1(a) and 1 (d); page 293, problems 1(a) and 4; page 296, problem 1(c); page 299, problem 1; pages 303 and 304, problems 7 and 9 in exercise set E; Review Exercises, page 304, problem 3; page 307, summary points 2 through 6 .

- **The Normal Approximation for Probability Histograms**

Chapters 18.2 to 18.4, and 18.6, pages 310 to 318 and 325 to 327: example 1; figures 1 and 2; boxes on pages 310, 312, 325, and 326; pages 312 and 314, problems 1 and 2 (*Pay particular attention to the answers to problem 2.*); page 319, problems 3, 5, and 6; page 327, problems 1, 2 (b), and 4.

- **The Expected Value and Standard Error (for the sample percentage).**

Chapter 20.2, pages 359 to 360; example 1 on pages 362 and 363; boxes on pages 359 and 364; Technical Note on page 362; page 361, problem 2; page 366, problems 2 (a); pages 371 to 373, problems 1 and 7 (c); summary on page 373, points 2 and 3.

- **Confidence Intervals.**

Chapter 21.2, pages 381 and 382: example 2; middle bullet on page 381; page 387, problems 5 (a) to (d), 6 (a) and (b); page 392. problem 5; page 394, summary points 1 to 4.

- **The Accuracy of Averages: Introduction.**

Chapters 23.1 and 23.2, pages 409 to 418: examples 1, 2, and 3; also technical note (ii) on the top part of page 415; boxes on pages 410 and 412; page 413, problem 2; page 423, problem 1; pages 425–427, problems 1, 2(a), 2(b), 3, and 10.

- **Which SE?**

Chapter 23.3, pages 422–3; page 423, probs. 1 and 4 (a); pg. 437, summary pts. 2, 4, 5, and 6.

- **The Gauss Model.**

Chapter 24.1, pages 441 to 444; example 1; page 444, problem 3.

Chapter 24.3, pages 450 to 452: example 5; boxes on pages 450 and 451; pages 453 and 454, problems 5 (a), 5 (b), 6, and 7; pages 455 and 456, problems 1a–1c and 3; page 572, problems 30 and 31; summary on page 457, points 1 to 5.

- **Introduction to Tests of Significance.**

Chapter 26.1, pages 475 and 476.

- **The Null and the Alternative**

Chapter 26.2, pages 477 and 478; page 478, problems 1, 2, 4, and 5; page 495, problem 1.

- **Test Statistics and Significance Levels.**

Chapter 26.3 and 26.4, pages 478 to 482; page 481, problems 1(a), 3, 4, and 5; page 483, problems 2 and 3; page 496, problem 5.

- **Zero-one Boxes.** Chapter 26.5, pages 483 to 485; page 487, problems 7 and 8; page 518, problem 1; page 500, summary points 1 to 5.

- **The Chi-Square Test.**

Chapter 28.1 and 28.2, pages 523 to 531; example 1; pages 531 and 532, problems 1–4; summary on page 544, points 1 to 4.i

- **The Role of the Model.**

Chapter 29.4, pages 555 and 556; box on pg. 555 and top box on pg. 556; example 4.

Sample Final Exam for May 2024: problems 1–17, 18–24, 26–28.

Practice Problems for Final Examination of May 2023:
problems 15,18,20,22,29,32–34,36,38,42,43,45–47.

Supplementary Practice for the Final Examination of May 2023:
problems 2–5, 8, 24–25, 28, 32, 37, 43, 44, 46, 51, 57.

Review Problems for Final:
problems 1, 4c, 5a, 6a, 7a, 8a, 9a, 12, 13a, 20, 22, 23, 25, 29–32, 35, and 36.

From Test 1: 4, 5, 8.

From Test 2: problems 1, 2, 4, 5, and 6.

From Test 3: all.

Quiz 1: all.

From Quiz 2: 1 (b).

Quizzes 3 to 6: all.

From Practice for Test 1: 4, 5, and 8.

From Practice for Test 2: problems 1, 2, 4, 5, and 6.

From Practice for Test 3: all.

From Practice for Test 4: all.

Practice for Quiz 1: all.

Practice for Quiz 2: 1bc, 2b, 3b, 4b, 4c.

From Practice for Quizzes 2 to 4: all.

From Homework 1:	problems 3 (page 52, problem 5) and 5(a).
From Homework 2:	problems 4, 12a, and 13a.
From Homework 3:	problems 1 and 4.
From Homework 4:	problems 5a and 5b.
From Homework 5:	problems 1b, 2, and 3.
From Homework 7:	problems 4 and 5a.
From Homework 9:	problems 1 and 2.
From Homework 10:	problems 2a, 3b, 4, and 5.
From Homework 11:	problems 1 and 3.
From Homework 13:	problems 1, 2, 3a, 3c, 3e, 4.
From Homework 14:	problems 4, 5a, 5b.
From Homework 15:	problems 1 and 2.
From Homework 16:	problems 3a, 3b, 4, 5, 6, and 8.
From Homework 17:	problems 1, 2, 3a, 3b.
WeBWorK HW 1:	problems 2e, 5ab.
WeBWorK HW 2:	problems 3ab, 7, 8a.
WeBWorK HW 3:	problems 5, 8.
WeBWorK HW 4:	problems 4 and 5b (the part with $LSAT = 75$).
WeBWorK HW 6:	problems 7, 8a, 8b, 9.
WeBWorK HW 7:	problem 2a.
WeBWorK HW 8:	problems 1, 2, 3, and 5.
WeBWorK HW 9:	problem 6.

WeBWorK HW 10: problems 1, 2a–2e, 3, and 5.

WeBWorK HW 11: problems 1 and 2.

WeBWorK HW 12: problems 1 and 8.

WeBWorK HW 13: problems 2, 3, and 4.

Explanatory Sheet: Regression Methods: Problems 2 to 4.