

Each exam's Topics/Objectives List tells what I'll expect of you on that exam, and gives an outline for creating your own, detailed study guide. Compare the list to your **notes, in-class materials, reading, online links, Weekly Assessments, Required Practice, and extra practice problems** - you might recopy key definitions and explanations, rewrite thorough examples of tasks and solutions, jot down warnings of what not to do, etc. Strive to master concepts, explanations, and computational techniques in general; memorizing specific examples is seldom successful.

Using problem flashcards, studying together, and seeing me or the MAC tutors can help.

*For exams in math, science, psychology, etc., starting to study well in advance and putting in good time can help you tame test anxiety by feeling well-prepared to recall what you understand. Strong students can probably get by with 1-2 hours of exam prep per day at first, then 2-2.5 hours per day for the last two days. But if you've been struggling, expand those estimates!*

**Decimal Arithmetic:** *Show detailed markings to add, subtract, multiply, divide by hand.*

1. Explain clearly what we do with decimal points in EACH algorithm; also explain WHY when asked.
  - (a) This includes what we do with the decimal points for each of dividend, divisor, quotient in division, and why. Know which is which, because I'll only give credit for explaining the ONE I ask for.
2. Use position NAMES (not counting 1,2,3,... Short-Cut) to explain the smallest place value in a given product.
3. Remember that by-hand division needs good alignment of vertical columns, and that EVERY digit in the quotient creates a subtraction below.
4. Be sure to write the  $+$ ,  $-$ ,  $\times$  symbols to indicate those operations, including when they are part of another algorithm (such as showing all the subtraction signs during by-hand division, or the internal addition sign at the end of multiplying by hand).

**Decimal Appearances, Ordering:** *Be careful about blindly trusting your calculator display!*

1. Name the three appearances of decimal numbers; give meaningful child-level examples (NOT  $\pi$ , not  $\sqrt{\quad}$ ).
2. Correctly use and interpret bar and ellipsis notation (or its absence!) in decimal numbers.
  - (a) Do NOT use an ellipsis to indicate digits going on "randomly." Establish a pattern instead.
  - (b) Know that repeating decimals ARE non-terminating - their digits do NOT stop.
3. Convert between bar notation and ellipsis for representing repeating decimals.
4. Define/explain the meaning of the terms rational number, irrational number, real number. If asked, also tell how we recognize them from their appearances. Know that the definition is NOT the appearance!
5. Identify or give examples of decimal numbers that are rational/irrational.
6. Convert fractions to decimals; round, use bar, or use ellipsis as allowed.
7. Convert appropriate decimals to fractions, showing work. Remember that mixed numbers are NOT fractions yet; be able to convert.
8. Order a given set of fractions and decimal numbers by size, including non-terminating.
9. Identify just the largest, smallest, etc. from a list of fractions and decimal numbers.
10. Know and clearly state what the concept of denseness means for decimal numbers.
11. Demonstrate denseness by making rational or irrational numbers between others.

**Percents:** Especially study Required Practice AND extra web practice problems here!

1. Use correct notation to convert back and forth among decimals, percents, and fractions.
2. Round to the nearest tenth, hundredth, etc. of a percent when asked. Round decimals as well.
  - (a) Know that you can ALWAYS round numbers given in standard form. Be careful when there's a bar.
3. Solve percent word problems that don't have any "real life" context (IS/OF problems).
4. State the Big Rule of Percent Applications clearly and meaningfully.
5. Solve word problems about percent increase/decrease. Identify which happened.

(continued on back)

6. Given a discount or mark-up situation, analyze whether it is correct to apply the percent to the other number shown in the problem.

(a) Justify by identifying whether the other number is newer versus older in the story.

**Statistics:** *Memorize names, labeling/scale requirements, “best for” features of each graph on Summary #4.*

1. Give a definition of each class of graph: frequency, proportion, or relationship.
2. Identify each of the 8 types of graph (including box-whisker) as frequency, proportion, or relationship.
3. Make the best choice of graph type for a given setting, as in Activity multiple choice.
4. Create, fully label all types of graphs on the Summary except scatter plots. Use good scale.
5. Be prepared for graphs that require percents or fractions, as in textbook extra practice.
6. Read and interpret graphical information, as in Required Practice #13, extra web listing, and WA.
7. Read graphical information to get numbers to find mean, median, mode, etc.
8. Name all measures of center (3 names), spread (2 names). Define the terms: median, mode, range.
9. Find mean, median, mode(s) of a set of scores. Know, explain when we have multiple or no modes.
10. Know that in comparing two data sets, a bigger standard deviation means scores are more spread out.
11. Answer true/false questions about center and spread, as in Required Practice #14.
12. Create data that has specified mean, median, mode, or range behavior, as in Activity and practice.
  - (a) Recognize and meaningfully explain situations that are impossible.
  - (b) If two measures of center create an impossibility, you should discuss BOTH, not just one of them.
13. Find the range of a given set of data; use given range to find missing data, as in text practice.
14. Given a mean: find the total, find new mean when a few new scores are added, deleted.
15. Find a mean when given the means for separate groups of data, as in the cheerleader problem.
16. Create and label a box-whisker plot and/or a 5-Number Summary for a list of scores.
17. Tell what words “IQR” stands for and what that phrase actually means. Find the IQR for a list of scores.

**You will have the entire class period to take the exam. When you finish, you may hand it in and leave.**

**Chairs will face the projector; sit in alternate rows, for easier walking without disturbing others.**

(If we make the rows long, we'll fit against the left wall, the right wall, and one middle row.)

**You need a calculator (not cell phone, no alphabet), but no other aids except the circle draws I'll provide.**

(If you forget, you can borrow from me, but mine don't have +/- keys.)

**Students with documented accommodations should speak with me and process ODS requests ASAP.**

ODS should proctor your accommodations since our classroom and my schedule are not automatically free.

Make-up Policy:

1. Notify me immediately if you'll miss the exam.
2. Documentation will be required: get a doctor's note, accident report, newspaper notice, etc.
3. If I excuse your absence, the Exam #2 content on our cumulative Final Exam in December will also be your make-up exam.
4. (D2L will show an artificial 0 for any excused absence until the end of the course.)