

Topics/Objectives Lists tell what I'll expect of you on exams, and give an outline for creating your own, detailed study guide. Compare this list to your notes, in-class materials, reading, online links, Bonus Study Prompts, Weekly Assessments, Required Practice, and extra problems - you might want to 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 an hour a day at first, then 2 hours per day for the last two days. But if you've been struggling, expand those estimates!

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

1. Name the three appearances of decimal numbers; give meaningful examples suited to children (NOT π).
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. 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 definitions and appearances are NOT the same thing!
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.
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 the 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. Solve word problems about percent increase/decrease. Identify which happened.
5. 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: *Know 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 practice.
6. Read and interpret graphical information, as in practice problems, Bonus Study Prompt, 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. 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.
11. Find the range of a given set of data; use given range to find missing data, as in text practice.
12. Given a mean: find the total, find new mean when a few new scores are added, deleted.
13. Find a mean when given the means for separate groups of data, as in the cheerleader problem.
14. Create and label a box-whisker plot and/or a 5-Number Summary for a list of scores.
15. Find the IQR for a list of scores.

Exponents:

1. Memorize and show the formal definition of a^n when n is a positive integer.
2. Know how the definition for a negative exponent helps us create a fraction.
3. Remember that anything to the 0 power creates 1: $a^0 = 1$.
4. Explain the steps in the Order of Operations in sentences, not single words. (Know there are just 4 steps.)
5. Correctly simplify expressions using the Order of Operations, especially when exponents (possibly negative) are involved.
 - (a) Be careful also when substituting a value for a variable: you must treat the entire substitution the way the variable is being treated.
 - (b) Putting your own, new parentheses around the substitution can help.
6. Use the definition of a^n when n is a positive integer and given concrete set-ups to show WHY:
 - (a) $a^n \cdot a^m$ must equal what it does (as in class example)
 - (b) $(a^n)^m$ must equal what it does (as in class example)
 - (c) $a^n \div a^m$ must equal what it does (as in class example)
 - (d) I'll give concrete numbers for the exponents but leave variable a , b showing, as in class example.
7. Same Base Rules will use ONLY variables, no numbers. (So NOT like Activity #17.)
 - (a) See the Required Practice for sample problems.

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

You will need a basic calculator (not cell phone, no alphabet), but no other aids are permitted.

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.