

Prepare for the exam by studying the topics listed below in conjunction with your notes, in-class activities, homework, quizzes, and text. **BRING A NON-CELL PHONE CALCULATOR.**

Ratio and Proportion:

1. Convert between ratios written with notation (“to” or a colon) and ones written verbally (using “For every” or “Out of every” types of phrasing), as in HW #9.
2. Recognize and describe the difference between unit-rate and scaling, using them when required.
3. You may also use representative set diagrams or lists if you choose. I will not require them.
4. Solve word problems using proportional equations, (using charts if desired), as in HW #10.

Decimal Basics:

1. Convert between decimal notation, numbers written in words, and expanded form with exponents.
2. Find all decimals satisfying given clues, including clues about rounding and negative exponents.
3. Explain why place value patterns show that 10^0 equals 1, that $10^{-1} = \frac{1}{10}$.
4. Add, subtract, multiply, and divide decimal numbers by hand.
5. Know which operations require *all* decimal points to be aligned, and why.
6. Explain how to find the smallest place value in a given product, **without counting positions**.
7. Explain thoroughly why each decimal point in a division problem is treated as it is. Be especially thorough in *showing* the FLF computation.
8. Memorize the names of the scenarios (models) for arithmetic operations. (Summary #2)
9. Given a word problem, specify the number sentence and scenario it requires.
10. Make up your own word problem to fit a given named scenario.

Decimal Appearances:

1. Use and understand bar notation to represent repeating decimals.
2. Know which types of decimals can and cannot be converted to fractions (are/are not rational).
3. Convert terminating and repeating decimals to fractions (no mixed numbers).
4. Be prepared to convert decimals whose repetend is not next to the decimal point.
5. Use lowest terms to predict whether a given fraction creates a terminating decimal.
6. Use correct notation to convert a fraction to a decimal.
7. Create and recognize irrational numbers.
8. Demonstrate the concept of denseness for decimals, including making rational and irrational numbers between two others.
9. Order a given collection of decimals, including non-terminating ones.
10. Discuss remainders to explain why fractions can only create decimals that terminate or repeat.

Percents:

1. Use correct notation to convert among fractions, decimals, and percents.
2. Round to the nearest tenth, hundredth, etc. of a percent when asked.
3. Choose the larger of two quantities described as fractions, decimals, or percents, as in HW #14.
4. Solve percent word problems that don’t have any “real-life” context.
5. Solve word problems involving percents, including percent increase/decrease, discount/mark-up.
6. Be prepared for word problems in which the “original” amount is unknown.
7. Solve problems about sequential application of percents, including finding overall percent change.
8. Explain why percents aren’t just added when applied sequentially.