

Exam 1 Outline

1. **Exponents.** Reference: College Algebra, Section P3 and P4, Section 2.8. You will be asked to do problems similar to those on WeBWork Exponents1 and Exponents2. If you want more practice, you can log in to WeBWork with login *practice1* (or *practice2*, or *practice3* etc...) and password *practice1* (or *practice2*, etc...).
2. **Intervals.** Reference Section P2. You will be asked questions like those on the Hand Graded Homework on Intervals. Be able to translate between the four different notations that we use to express intervals. Know how to find the midpoint and radius of an interval. Know that the graphical representation, interval notation and inequalities tell you whether or not the end points of the interval are included, while the midpoint \pm error representation does not convey this information.
3. **Measurement.** You will be asked questions similar to those on the Hand Graded Homework on Significant Figures and Error. Know that measurement reported with significant figures actually reports an interval in which the exact measurement lies. On your exam, you may be given a measurement in significant figures and asked to give the interval in which the exact value lies. You may be asked to determine the interval in which the exact value of a sum of measurements lies.

Understand the following two facts: Measurements reported using significant figures tell you that the error involved in the measurement is plus or minus 1 in the position of uncertainty. Computations done using significant figures does not record the precise error involved in the computation (though using significant figures ensures that the results of a computation are rounded to a number of digits that is fairly reasonable.)

4. **Significant figures.** Know the rules for identifying how many significant figures are present, what the position of uncertainty is, how to represent the answers to calculations using significant figures.
5. **Functions and Words.** Reference: Section 3.1. You will be asked to solve problems like those found in WeBWork UnitConversions and the Hand Graded Homework Functions and Words. For example, suppose a certain type of bottle holds 1.5 gallons. The ratio involved is $\frac{1.5 \text{ gallons}}{1 \text{ bottle}}$. The function that models the number of bottles it takes

to hold x gallons is given by

$$f(x) = \frac{1 \text{ bottle}}{1.5 \text{ gallons}}(x \text{ gallons}),$$

or simply $f(x) = x/1.5$.

Understand the relationships between the verbal and algebraic representations of functions. Given a verbal description of a function, be able to write the algebraic expression for the function. Given the algebraic description of a function, be able to write a verbal description.

You will be asked to evaluate functions at specific values, and to explain what evaluated functions represent verbally. For example, using $f(x)$ above, $f(3) = 3/1.5 = 2$. Verbally $f(3)$ represents the number of bottles it takes to hold 3 gallons.

6. **Mixing Problems.** Reference Section 1.2 Example 6 on pages 88-89. You will be asked to solve a mixing problem, similar to those found in the Hand Graded Homework on Mixing Problems.