

This study guide is a quick listing of topics. There are old tests and keys below that are to be used with discretion. Topics per test vary from semester to semester based on how the material is split up by weeks and holidays and by the text we are using, so use as practice only the problems that are of the type we are covering - as stated below. The major topics for this test are:

1. Laws of Exponents
2. Operations on Polynomials
3. Factoring of Polynomials
4. Solving Quadratic Equations Using the Zero Product Property

Here are more details under each category:

1. **LAWS OF EXPONENTS:**

- a) Be able to identify the base so that you know what the exponent is impacting.
- b) Know how to use zero as an exponent.
- c) Know the laws for using exponents when multiplying, dividing and exponentiating terms.
- d) Understand and be able to use negative exponents.

2. **OPERATIONS ON POLYNOMIALS:**

- a) Be able to add, subtract, multiply and divide with polynomials.
- b) Remember that when dividing polynomials if the denominator is a monomial you can just split it up into separate fractions and reduce but that if you are dividing by a larger polynomial you need to do a long division process.
- c) Be able to raise a binomial to a power. (DON'T distribute the exponent in this case.)

3. **FACTORING OF POLYNOMIALS:**

Comments - this will make up a significant portion of the test. Six or more of the problems out of twenty will be straight factoring and others will involve factoring as part of the problem. For instance, when you solve quadratic equations you need to factor as part of the solving process. Be sure that you can factor any type of polynomial we've covered (two terms, difference of squares, difference of cubes, sum of cubes, perfect square trinomials, trinomials with  $a = 1$  and trinomials where  $a \neq 1$ ). **ALWAYS** remember to try to pull out a GCF first, and **ALWAYS** remember to take a look at what you think is your answer in order to see if you can factor further.

4) **SOLVING QUADRATICS (ZERO-PRODUCT PROPERTY):**

- a) Be able to solve quadratics - remember that you need to set them equal to zero!