

**DIRECTIONS:** No calculators may be used. Be sure to *show ALL of your work*. Depending on the problem, you may receive **NO CREDIT** if no work is shown even if the answer is correct. Don't take that chance. I do provide SCRATCH PAPER, but you need to be sure to COPY OVER onto this document any work that you want me to check. If your answer is a fraction, reduce it to lowest terms. If there is a blank, write your answer in the blank, otherwise **circle your answer**. Once the test is returned, the **KEY** will be posted outside my office. Use the key to check and correct your work. **Keep this test** to study from for the final exam.

**EVALUATE** the following expressions involving exponents.

1.  $159^0$

2.  $-3^{-2}$

**SIMPLIFY** the following expressions involving exponents. Write your answer with no negative exponents

3.  $(x^3y^4)^4(2x^5)^3$

4.  $\frac{x^{10}}{x^{-5}}$

5.  $\frac{12c^{12}}{-3c^3}$

6.  $\frac{(3y^4)^{-2}(y^{-2})^3}{(6y^2)^2}$

**FACTOR** the following polynomials completely.

7.  $x^2 - 3xy - 10y^2$

8.  $8x^3 + 125$

9.  $49x^2 - 56x + 16$

10.  $5x^2 - 28x - 12$

11.  $5x^3 - 45x$

12.  $x^3 - 2x^2 + 4x - 8$

**Perform the operations.**

13.  $(2x + 3)(4x^2 - 6x + 9)$

14.  $(x + 2)^3$

15.  $(7x^3 - 5x^2 + 8x - 12) - (6x^2 + 5x - 12)$

**Find each quotient.**

16.  $(40y^{12} + 15y^4 + 5y^2) \div (5y^2)$

17.  $\frac{3x^3 + 7x^2 + 9x - 11}{3x - 2}$

**SOLVE the quadratic equations.**

18.  $(2x - 3)(x + 5) = 0$

19.  $x(4x - 7) = x^2 - 2$

20.  $x^2 - 5x = 14$