

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. 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. -2^{-3}

2. 4^0

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

3. $\frac{w^2}{w^{-8}}$

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

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

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

FACTOR the following polynomials completely.

7. $27x^3 - 64$

8. $x^2 - 3xy - 40y^2$

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

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

11. $3x^5 - 48x$

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

Perform each operation.

13. $(3x + 1)(x^2 - 5x - 2)$

14. $(x + 4)^3$

15. $(3x^3 - 10x^2 + 2x - 3) - (x^2 + 2x - 4)$

Find each quotient.

16. $(16w^{12} + 8w^4 + 2w^2) \div (2w^2)$

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

SOLVE the quadratic equations.

18. $(3x + 2)(x - 4) = 0$

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

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