MATH 100   Name: _____

Worksheet: _____   Date: _____

<u>ANSWER SHEET</u>

Instructions: Place your answers to all problems on this sheet. Attach your work for the problems on the back. If answer doesn't fit on the answer sheet and is on your solution paper, indicate that in the answer slot below by writing "on solution paper".

1. _____   15. _____

2. _____   16. _____

3. _____   17. _____

4. _____   18. _____

5. _____   19. _____

6. _____   20. _____

7. _____   21. _____

8. _____   22. _____

9. _____   23. _____

10. _____   24. _____

11. _____   25. _____

12. _____   26. _____

13. _____   27. _____

14. _____   28. _____

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Worksheet: _____

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Name: _____

Solve the problems on a <u>separate sheet of paper</u>. Also, write your answers on the answer sheet.

<u>Section 6.1 – The Greatest Common Factor; Factoring by Grouping</u>
Find the greatest common factor for each group.
1. 70, 126, 42, 56
2. 84, 280, 112

Find the greatest common factor for each list of terms.
3. y^7z^2, y^4z^8, z^3
4. $45a^7y^4$, $75a^3y^2$, $90a^2y$, $30a^4y^3$

Complete the factoring.
5. $84 = 4(\quad)$
6. $-75a^4y^2 = 25a^3y^2(\quad)$

Factor out the greatest common factor.
7. $45xy + 18x + 27x^3y$
8. $56x^2y^4 - 24xy^3 + 32xy^2$

Factor each polynomial by grouping.
9. $x^4 + 2x^2 + 5x^2 + 10$
10. $12x^2 + 4xy - 6xy - 2y^2$

<u>Section 6.2 – Factoring Trinomials</u>
List all pairs of integers with the given product. Then find the pair whose sum is given.
11. Product: 28; sum: -11
12. Product: -54; sum: -3

Complete the factoring.
13. $x^2 + 3x - 28 = (x - 4)(\quad)$
14. $x^2 - x - 30 = (x + 5)(\quad)$

Factor completely. If a polynomial cannot be factored, write "prime."
15. $x^2 - 11x + 28$
16. $x^2 - 8x - 33$

Factor completely.
17. $3p^6 + 18p^5 + 24p^4$
18. $3xy^2 - 24xy + 36x$

<u>Section 6.3 – More on Factoring Trinomials</u>
Factor by grouping.
19. $3x^2 + 13x + 14$
20. $25a^2 + 30ab + 9b^2$

Complete the factoring.
21. $6x^2 + 19x + 10 = (3x + 2)(\quad)$
22. $24y^2 - 17y + 3 = (3y - 1)(\quad)$

Complete each trinomial by trial and error (using FOIL backwards).
23. $4y^2 + 3y - 10$
24. $14b^2 + 3b - 2$

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Section 6.4 – Special Factoring Techniques
Factor each binomial completely. If a binomial cannot be factored, write "prime."

25. $x^2 - 49$

26. $100r^2 - 9s^2$

Factor each trinomial completely. It may not be necessary to factor out the greatest common factor first.

27. $m^2 - 8m + 16$

28. $-16x^2 - 48x - 36$

Find each difference. Write each answer in lowest terms.

29. $b^3 - 27$

30. $c^3 - 8$

Find each sum. Write each answer in lowest terms.

31. $m^3 + 64$

32. $y^3 + 27$

Section 6.5 – Solving Quadratic Equations by Factoring
Solve each equation. Check your answers.

33. $2x^2 - 3x - 20 = 0$

34. $12x^2 + 7x - 12 = 0$

Solve each equation.

35. $x(2x^3 - 7x - 15) = 0$

36. $x^3 + 2x^2 - 8x = 0$

Section 6.6 – Applications of Quadratic Functions

37. The length of a rectangle is three times its width. If the width was increased by 4 and the length remained the same, the resulting rectangle would have an area of 231 square inches. Find the dimensions of the original rectangle.

38. The area of a triangle is 42 square centimeters. The base is 2 centimeters less than twice the height. Find the base and height of the triangle.

39. The product of two consecutive even integers is 24 more than three times the larger integer. Find the integers.

40. A flag is shaped like a right triangle. The hypotenuse is 6 meters longer than twice the length of the shortest side of the flag. If the length of the other side is 2 meters less than the hypotenuse, find the lengths of the sides of the flag.