Name: **Date:**
Instructor: **Section:**

Chapter 6

Factor each polynomial completely. If a polynomial cannot be factored, write "prime."

1. $8x^3 - 12x^2$ 1. _____

2. $a(a+2) - 3(a+2)$ 2. _____

3. $3x^2 + 6xy - 5x - 10y$ 3. _____

4. $x^2 - x - 12$ 4. _____

5. $x^2 - 11x + 30$ 5. _____

6. $a^2 + 12a + 36$ 6. _____

7. $x^2 - 5x + 8$ 7. _____

8. $3x^2 + 2x - 8$ 8. _____

9. $x^3 - 8$ 9. _____

10. $6x^3 - 38x^2 + 40x$ 10. _____

11. $x^3 - 16x + 2x^2 - 32$ 11. _____

12. $x^5 - 4x^3 - 9x^3 + 36x$ 12. _____

13. $x^2 - xy - 6y^2$ 13. _____

14. $2x^2 + 5xy - 12y^2$ 14. _____

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Chapter 6

Solve each equation.

15. $x^2 - x - 12 = 0$ **15.** _____

16. $x^2 + 4x = 12$ **16.** _____

17. $x^2 + x - 30 = 0$ **17.** _____

18. $15x^3 - 4x^2 - 4x = 0$ **18.** _____

19. $x^3 = 9x$ **19.** _____

20. $20x^2 + 7x - 6 = 9$ **20.** _____

21. $4x^2 = 49$ **21.** _____

22. $x^2 - 7x = 0$ **22.** _____

23. A rectangle has an area of 54 square feet. If the length is 3 feet more than the width, find the dimensions of the rectangle. **23.** _____

24. The sum of two numbers is 14. The sum of the squares of the two numbers is 100. Find the two numbers. **24.** _____

25. The height h of a rock t seconds after it is dropped off a cliff is given by the equation $h = -16t^2 + 400$. How many seconds after the rock is dropped will it hit the ground? **25.** _____