Homework: Quadratic Equations

In Problems 1-4, solve each equation by factoring

1. $x^2 - 4x - 21 = 0$	2. $8x^2 + 14x + 3 = 0$
3. $5x^2 - 10x = 0$	4. $33x - 3 = (4x + 1)(x + 5)$

In Problems 5-9, solve each equation by the square root property

5. $4x^2 - 1 = 11$	6. $(x + 7)^2 = 16$
7. $(x - 1)^2 = -9$	8. $(5x - 2)^2 = 4$
9. $(6x - 5)^2 = 12$	

In Problems 10-12, determine the constant that should be added to the binomial so that it becomes a perfect square trinomial. Then write and factor the trinomial

10. $x^2 - 8x$	11. $x^2 - 5x$
12. $x^2 + \frac{1}{5}x$	

In Problems 13-16, solve each equation by completing the square

13. $x^2 + 4x = 3$	14. $x^2 + 6x + 1 = 0$
15. $x^2 + 5x - 2 = 0$	16. $5x^2 - 5x - 3 = 0$

In Problems 17-19, solve each equation using the quadratic formula

17. $x^2 + 8x + 12 = 0$	18. $5x^2 - 2x - 1 = 0$
19. $x^2 - 2x + 8 = 0$	

In Problems 20-21, compute the discriminant. Then determine the number and type of solutions for the given equation

20. $3x^2 - 10x + 1 = 0$	21. $8x^2 + x + 2 = 0$

In Problems 22-27, solve each equation by the method of your choice

22. $6x^2 + 3 = 4x$	23. $x^2 - 3x = 1$
24. $(3x + 1)^2 = 25$	25. $5x^2 - 20 = 0$
26. $x^2 = 8x - 2$	27. $\frac{1}{x} + \frac{1}{x+4} = \frac{1}{2}$

In Problems 25-28, factor using the formula for the sum or difference of two cubes

25. $(x+2)(x^2-2x+4)$	26. $(x-5)(x^2+5x+25)$
27. $(3x-2)(9x^2+6x+4)$	28. $(2x+3y)(4x^2-6xy+9y^2)$

In Problems 29-31, factor completely

29. $5x(x+2)(x-2)$	30. $5(x-4)(x+1)$
31. $(x+7)(x+2)(x-2)$	