Homework: Other Types of Equations

In Problems 1-3, solve each polynomial equation by factoring and then using the zero-product principle

1. $5x^4 - 20x^2 = 0$	2. $4 = -72x^3 + 9x^2 + 32x$
3. $3x^4 = 81x$	

In Problems 4-8, solve each radical equation.

4. $\sqrt{x+8} = x+2$	5. $x - \sqrt{3x+7} = 1$
6. $\sqrt{4x} + 3 = x + 4$	7. $\sqrt{x+4} = 3 + \sqrt{x+1}$
8. $\sqrt{2\sqrt{x+3}} = \sqrt{2x+2}$	

In Problems 9-10, solve each equation with rational exponents

9. $(x+2)^{\frac{3}{2}} = 8$	10. $(x-3)^{\frac{2}{3}} = 9$

In Problems 11-15, solve each equation by making an appropriate substitution

11. $x^4 - 13x^2 + 36 = 0$	12. $x - 5\sqrt{x} + 6 = 0$
13. $x^{\frac{2}{3}} - 4x^{\frac{1}{3}} - 5 = 0$	14. $3x - 7x^{\frac{1}{2}} + 2 = 0$
15. $(x^2 - x)^2 - 26(x^2 - x) + 120 = 0$	

In Problems 16-19, solve each absolute value equation or indicate that the equation has no solution

16. $\lvert x \rvert = 4$	17. $\lvert 5x + 2 \rvert = 3$
18. $5\lvert 3x \rvert - 1 = 24$	19. $\lvert x + 2 \rvert + 6 = 2$

In Problem 20, solve each absolute value equation or indicate that the equation has no solution

20. $\lvert 7x+1\rvert = \lvert x+4\rvert$	