

Be sure to follow [College Algebra formatting guidelines](#) in your work.

1. (5 pts) Solve the equation $\sqrt{7x} + x = 0$.
2. (5 pts) The equation $2(x-5)^2 - 13(x-5) - 7 = 0$ is of quadratic type. Solve this equation by making a clever substitution.
3. (5 pts) Find all real solutions of the equation $x^5 - 18x^4 + 6x^3 = 0$.
4. (5 pts) Find all real solutions of the equation $2x^3 + 7x^2 - 8x - 28 = 0$. This one factors by grouping.
5. (5 pts) Find all real solutions of the equation $\frac{x+6}{x^2+6} = \frac{2}{x+2}$.
6. (5 pts) Find all real solutions of the equation $\frac{x + \frac{4}{x}}{\frac{4}{x} + 5} = 2x$
7. (5 pts) Solve the inequality $\frac{x+6}{x^2+6} \geq \frac{2}{x+2}$. While the book way, with test values on intervals and endpoints

works, we can often get these done more quickly, if we understand some general ideas and general considerations.

See [1.8 Notes](#) and [1.8 Videos](#). I suggest opening the Notes in one tab, and the Videos in the tab right next to it.

8. Solve the absolute value inequalities:
 - a. (5 pts) $|2x - 3| > 7$
 - b. (5 pts) $|3x + 8| \leq 35$
 - c. (5 pts) $|2x - 3| > -7$
 - d. (5 pts) $|3x + 8| \leq -35$