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 $\dfrac{x+6}{x^2+6} = \dfrac{2}{x+2}$.

6. (5 pts) Find all real solutions of the equation $\dfrac{x + \dfrac{4}{x}}{\dfrac{4}{x} + 5} = 2x$

7. (5 pts) Solve the inequality $\dfrac{x+6}{x^2+6} \geq \dfrac{2}{x+2}$. 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) $|3x+8| \leq -35$