ALGEBRA 2 FINAL EXAM FLIP-BOOK

Below is a checklist of the items you should include in each section of your flip-book for it to be helpful to you on the final exam. In order to best help yourself, complete all items on the list with neat and clear writing, include additional examples, and use your creativity.

Flap 1	**Logarithms and Exponential Functions** ☐ Convert between exponential form and logarithmic form ☐ Use logarithms to solve exponential equations
Flap 2	**Equations and Inequalities** Solve each of the following: ☐ $2(x-3)^2+7=9$ ☐ $x-1=\sqrt{7x-13}$ ☐ $\lvert 2x-3\rvert-7<2$
Flap 3	**Operations with Rational Expressions** ☐ Multiply: $\frac{x^2+3x-10}{x^2+2x-15}\cdot\frac{2x^2-5x-3}{6x^2-x-2}$ ☐ Divide: $\frac{x^2-25}{2x^2+3x-5}\div\frac{x^2-6x+5}{2x^2+5x}$ ☐ Add: $\frac{1}{x+1}+\frac{x^2-4x+2}{x^2-5x-6}$ ☐ Subtract: $\frac{3x+2}{x^2+5x+6}-\frac{x-1}{x^2-x-12}$
Flap 4	**Systems of Equations and Inequalities** For $f(x)=x^2-5x$ and $g(x)=-2x+10$: ☐ Find where $f(x)=g(x)$ ☐ Use the boundary points you found above to find where $f(x)<g(x)$ ☐ Use the boundary points you found above to find where $g(x)<f(x)$ ☐ Solve the system of inequalities: $y<x^2-5x$, $y\geq 2x+10$

Flap 5	**Inverses** Write the inverse of each function ☐ $f(x) = -5x + 7$ ☐ $g(x) = 3x - 2$ ☐ $h(x) = \frac{1}{2}(x+4)^2 - 3$ Graph $y = -\|x - 3\| + 4$ ☐ Graph its inverse on the same set of axes ☐ Determine if the inverse is a function ☐ Find the domain and range of both the original function and its inverse
Flap 6	**Polynomial Expressions and Functions** Multiply: ☐ $(5x - 3)(x^2 + 3x - 2)$ ☐ $(x + 4)^2(x - 5)$ Find the *x*- and *y*-intercepts (write answers as ordered pairs): ☐ $y = 4x^2 - 10x - 6$ ☐ $y = 7x^2 - x - 10$ ☐ Determine the degree, orientation (positive or negative), *y*-intercept, roots (real and complex), and multiplicity of roots given a graph or equation Find ALL roots of: ☐ $P(x) = 3x^3 + 2x^2 - 23x + 14$ ☐ $P(x) = x^4 - 4x^3 + 4x^2 - 36x - 45$