Formula Sheet for Elementary Algebra Final Exam

<table>
<tr>
<td>Properties of Exponents
1. $a^n a^m = a^{n+m}$
2. $\frac{a^n}{a^m} = a^{n-m}$
3. $(a^n)^m = a^{nm}$
4. $(a^n b^m)^p = a^{np} b^{mp}$
5. $\left(\frac{a^n}{b^m}\right)^p = \frac{a^{np}}{b^{mp}}$
6. $b^{-p} = \frac{1}{b^p}$</td>
<td>Quadratic Formula
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Properties of Radicals
1. $\sqrt[n]{a}\sqrt[n]{b} = \sqrt[n]{ab}$</td>
<td>Simple Interest
$i = p \cdot r \cdot t$

Uniform Motion
$d = r \cdot t$

Basic Markup
$S = C + rC$

Basic Discount
$S = R - rR$

Value Mixture
$V = A \cdot C$</td>
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<tr>
<td>Absolute Value Inequalities
$|E| \le k$ iff $-k \le E \le k$
$|E| \ge k$ iff
$E \le -k$ or $E \ge k$

Absolute Value Equations
$|E| = k$
iff $E = k$ or $E = -k$</td>
<td>Equations for Graphing Lines
$m = \frac{y_2 - y_1}{x_2 - x_1}$, $y = mx + b$
$y - y_1 = m(x - x_1)$
$Ax + By = C$</td>
<td>Distance Formula
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint Formula
$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$</td>
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<tr>
<td>Factoring the Sum of Two Cubes
$a^3 + b^3$
$= (a + b)(a^2 - ab + b^2)$</td>
<td>Factoring the Difference of Two Cubes
$a^3 - b^3$
$= (a - b)(a^2 + ab + b^2)$</td>
<td>Factoring Perfect Square Trinomials
$a^2 + 2ab + b^2 = (a + b)^2$
$a^2 - 2ab + b^2 = (a - b)^2$</td>
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<td>Pythagorean Theorem
$a^2 + b^2 = c^2$

Rectangles
$A = L \cdot W$
$P = 2L + 2W$</td>
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