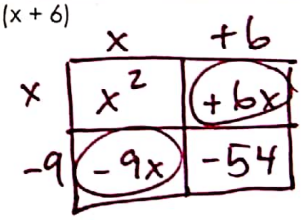
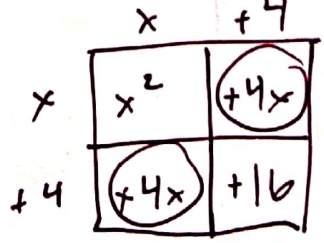
Algebra 1
Unit 4

Name: Answer Key
Date: _____ Block: _____

Radicals and Polynomials Unit Review

What you need to know & be able to do	Things to remember	Examples	
1. Simplify radicals	-Break each number down into its prime factors and circle pairs of the same number (perfect squares) -Keep each factor without a buddy underneath the square root.	a. $\sqrt{20}$ $\sqrt{2\cdot2\cdot5}$ $2\sqrt{5}$	b. $\sqrt{24x^2y^8}$ $\sqrt{2\cdot2\cdot2\cdot3\cdot x^2\cdot y^{8/4}}$ $2xy^4\sqrt{6}$
		c. $5\sqrt{12x^6y^5z^4}$ $10x^3y^2z^2\sqrt{3y}$	d. $-2\sqrt{10x^4y^2}$ $-2x^2y\sqrt{10}$
2. Multiply radicals	-Multiply the outside numbers and variables -Multiply the inside numbers and variables -Simplify radical	a. $-4\sqrt{15}\cdot\sqrt{3}$ $-12\sqrt{5}$	b. $\sqrt{2y^3}\cdot\sqrt{8y^3}$ $\sqrt{16y^4}$ $4y^4$
		c. $\sqrt{18a^2}\cdot4\sqrt{3a^3}$ $4\sqrt{54a^5}$ $12a^2\sqrt{6a}$	d. $3\sqrt{4m^2}\cdot-2\sqrt{10m^8}$ $-6\sqrt{40m^{10}}$ $-12m^5\sqrt{10}$

3. Add and Subtract Radicals	-Simplify each radical -Add or subtract like terms -Distribute if necessary	a. $2\sqrt{6} - 2\sqrt{54}$ $2\sqrt{6} - 6\sqrt{6}$ $\boxed{-4\sqrt{6}}$	b. $3\sqrt{12} + 3\sqrt{3}$ $6\sqrt{3} + 3\sqrt{3}$ $\boxed{9\sqrt{3}}$
		c. $\sqrt{5}(8\sqrt{12} + 1)$ $8\sqrt{60} + \sqrt{5}$ $8\sqrt{2 \cdot 2 \cdot 3 \cdot 5} + \sqrt{5}$ $\boxed{16\sqrt{15} + \sqrt{5}}$	d. $-3\sqrt{20} - \sqrt{5} + 8\sqrt{3}$ $-6\sqrt{5} - \sqrt{5} + 8\sqrt{3}$ $\boxed{-7\sqrt{5} + 8\sqrt{3}}$
5. Add and Subtract Polynomials	-Line up like terms -If subtracting, change subtraction sign to addition and change the signs of every term in the 2nd polynomial	a. $(4x + 3x^2 - 7) + (-6x^2 + 4)$ $\boxed{-3x^2 + 4x - 3}$	b. $(4x^2 - 3x - 2) - (9x^2 - 3x + 7)$ $\boxed{-5x^2 - 6x + 5}$
6. Multiply polynomials	-Distributive Method or Box Method - $x \cdot x = x^2$	a. $5x(3x + 7)$ $\boxed{15x^2 + 35x}$	b. $(x - 9)(x + 6)$  $x^2 - 3x - 54$
		c. $(x + 4)^2$ $(x+4)(x+4)$  $\boxed{x^2 + 8x + 16}$	d. $(6x + 3)(4x - 8)$ $24x^2 - 48x + 12x - 24$ $\boxed{24x^2 - 36x - 24}$