Algebra 1
Unit 5 Review

Name: Key
Date: _____ Block: _____

Unit Review

Topic	Things to Remember	Examples	
Factoring quadratics	Factor GCF. Multiply to $A \cdot C$, but add to B	Factor problems 1 – 4 1. $\frac{7x^2}{7x} - \frac{56x}{7x}$ $7x(x-8)$	2. $x^2 - 7x + 12$ 12 / -4 -3 / -7 $(x-4)(x-3)$
		3. $\frac{3x^2}{3} + \frac{33x}{3} + \frac{84}{3}$ $3(x^2+11x+28)$ 28 / 7 4 / 11 $3(x+7)(x+4)$	4. $2x^2 + x - 6$ -12 / 4 -3 / 1 x 2 / 2x: $2x^2$, $4x$ / -3: $-3x$, -6 $(2x-3)(x+2)$
Solving Quadratics Using GCF	Factor out GCF. Set each factor equal to zero.	5. $\frac{12x^2}{12x} + \frac{36x}{12x} = 0$ $12x(x+3) = 0$ $x = 0$ $x = -3$	6. $3x^2 - 6x = -15x$ (+15x, +15x) $\frac{3x^2}{3x} + \frac{9x}{3x} = 0$ $3x(x+3)$ $x = 0$ $x = -3$
Solving Quadratics using a = 1 factoring	Multiply to $A \cdot C$ and add to B Draw an X.	7. $x^2 - 16 = 0$ $x^2 + 0x - 16$ -16 / -4 4 / 0 $(x-4)(x+4)$ $x = 4$ $x = -4$	8. $x^2 - 3x - 70 = 0$ -70 / -10 7 / -3 $(x-10)(x+7)$ $x = 10$ $x = -7$
Solving Quadratics using a = 1 and GCF	Take out GCF. Multiply to $A \cdot C$ and add to B Draw an X.	9. $2x^2 + 6x = 8$ $\frac{2x^2}{2} + \frac{6x}{2} - \frac{8}{2} = 0$ $2(x^2 + 3x - 4)$ -4 / 4 -1 / 3 $2(x+4)(x-1)$ $x = -4$ $x = 1$	10. $\frac{3x^2}{3} - \frac{18x}{3} + \frac{15}{3} = 0$ $3(x^2 - 6x + 5)$ 5 / -5 -1 / -6 $3(x-5)(x-1)$ $x = 5$ $x = 1$

Solving Quadratics using a > 1 factoring	Multiply to $A \cdot C$ and add to B Draw an X. Draw box. Put ax^2 term and C into box. Fill the other two boxes with the numbers that multiply to $A \cdot C$ and add to B	11. $6x^2 - 7x + 2 = 0$ 12, -4, -3, -7 $3x$ -2 $2x$: $6x^2$, $-4x$ -1: $-3x$, 2 $(2x-1)(3x-2)$ $2x-1=0$ $\quad 3x-2=0$ $x=\frac{1}{2}$ $\quad x=\frac{2}{3}$	12. $3x^2 + 28x = 20$ $3x^2+28x-20=0$ -60, 30, -2, 28 x 10 $3x$: $3x^2$, $30x$ -2: $-2x$, -20 $(3x-2)(x+10)=0$ $x=\frac{2}{3}$ $\quad x=-10$
Solving by Square Roots	Isolate the "( )²" Square root both sides, and solve for x.	13. $9x^2 - 81 = 0$ $+81$ $+81$ $\frac{9x^2}{9}=\frac{81}{9}$ $\sqrt{x^2}=\sqrt{9}$ $x=\pm 3$	14. $3(x-1)^2 + 7 = 16$ -7 -7 $\frac{3(x-1)^2}{3}=\frac{9}{3}$ $\sqrt{(x-1)^2}=\sqrt{3}$ $x-1=\pm\sqrt{3}$ $x=1\pm\sqrt{3}$
Solving by Completing the Square	Get ax^2 and bx term on the same side. Get C on opposite side of equals sign. Add $\left(\frac{b}{2}\right)^2$ to both sides. Factor and solve.	15. $x^2 + 4x + 1 = 0$ x^2+4x $\underline{4}=-1$ $\underline{4}$ $\sqrt{(x+2)^2}=\sqrt{3}$ $x+2=\pm\sqrt{3}$ $x=-2\pm\sqrt{3}$	16. $\frac{2x^2}{2} - \frac{8x}{2} - \frac{10}{2} = 0$ $2(x^2-4x-5)=0$ x^2-4x $\underline{4}=5$ $\underline{4}$ $\sqrt{(x-2)^2}=\sqrt{9}$ $x-2=3$ $\quad x-2=-3$ $x=5$ $\quad x=-1$
Solving by quadratic formula	$\frac{(-b\pm\sqrt{b^2-4ac})}{2a}$	17. The discriminant of a function is 12... how many times will its graph cross the x-axis? Why? 2 times 12 is a positive #	18. $2x^2 - 5x - 3 = 0$ $\frac{5\pm\sqrt{5^2-4(2)(-3)}}{2(2)}$ $\frac{5\pm\sqrt{49}}{4}$ $\frac{5\pm7}{4}$ $\frac{5+7}{4}$ $\quad \frac{5-7}{4}$ $\frac{12}{4}$ $\quad \frac{-2}{4}$ 3 $\quad -\frac{1}{2}$
		19. How many solutions will the function $5x^2 - 3x + 12$ have? $b^2=4ac$ $(-3)^2-4(5)(12)=-231$ No Real Solutions	20. What would the graph of $y=2x^2-4x+2$ look like?