Name: _____Hirsch_____ Date: _____

Review of Discriminant and Quadratic Formula

	$3x^2 + 8x + 2 = 0$	$5x^2 + 2x + 4 = 0$	$2x^2 + 6x = -8$	$-x^2 + 2x = 0$
	$a=3 \; b=8 \; c=2$	$a=5 \; b=2 \; c=4$	$a=2 \; b=6 \; c=8$	$a=-1 \; b=2 \; c=0$
Find the value of the discriminant $b^2 - 4ac$	$(8)^2 - 4(3)(2)$ $\boxed{40}$	$(2)^2 - 4(5)(4)$ $\boxed{-76}$	$(6)^2 - 4(2)(8)$ $\boxed{-28}$	$(2)^2 - 4(-1)(0)$ $\boxed{4}$
Describe the number and type of roots	2 Real Roots	0 Real Roots	0 Real Roots	2 Real Roots
Find the EXACT solutions using the quadratic formula $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$x = \dfrac{-8 \pm \sqrt{(8)^2 - 4(3)(2)}}{2(3)}$ $x = \dfrac{-8 \pm \sqrt{40}}{6}$ $\dfrac{-8+\sqrt{40}}{6} \quad \dfrac{-8-\sqrt{40}}{6}$ $x = \boxed{-0.279} \quad x = \boxed{-2.387}$	$x = \dfrac{-2 \pm \sqrt{(2)^2 - 4(5)(4)}}{2(5)}$ $x = \dfrac{-2 \pm \sqrt{-76}}{10}$ $\rightarrow$ no real solutions $x = \dfrac{-2 \pm 2i\sqrt{19}}{10}$ $x = \boxed{\dfrac{-1 \pm i\sqrt{19}}{5}}$	$x = \dfrac{-6 \pm \sqrt{(6)^2 - 4(2)(8)}}{2(2)}$ $x = \dfrac{-6 \pm \sqrt{-28}}{4}$ $\rightarrow$ no real solutions $x = \dfrac{-6 \pm 2i\sqrt{7}}{4}$ $x = \boxed{\dfrac{-3 \pm i\sqrt{7}}{2}}$	$x = \dfrac{-2 \pm \sqrt{(2)^2 - 4(-1)(0)}}{2(-1)}$ $x = \dfrac{-2 \pm \sqrt{4}}{-2}$ $\dfrac{-2+\sqrt{4}}{-2} \quad \dfrac{-2-\sqrt{4}}{-2}$ $x = \boxed{0} \quad x = \boxed{2}$

	$x^2 - 11x + 10 = 0$ $X^2 + 10 - 11x = 0$ $a=1\ b=-11\ c=10$	$6x^2 + 3x - 6 = 0$ $a=6\ b=3\ c=-6$	$-2x^2 - 3x + 2 = 0$ $a=-2\ b=-3\ c=2$	$5x^2 + 2x + 1 = 0$ $a=5\ b=2\ c=1$
Find the value of the discriminant $b^2 - 4ac$	$(-1)^2 - 4(1)(10)$ $\boxed{81}$	$(3)^2 - 4(6)(-6)$ $\boxed{153}$	$(-3)^2 - 4(-2)(2)$ $\boxed{25}$	$(2)^2 - 4(5)(1)$ $\boxed{-16}$
Describe the number and type of roots	2 Real Roots	2 Real Roots	2 Real Roots	0 Real Roots
Find the EXACT solutions using the quadratic formula $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$x = \dfrac{11 \pm \sqrt{(-11)^2 - 4(1)(10)}}{2(1)}$ $x = \dfrac{11 \pm \sqrt{81}}{2}$ $\dfrac{11 + \sqrt{81}}{2} \quad \dfrac{11 - \sqrt{81}}{2}$ $x = \boxed{10} \quad x = \boxed{1}$	$x = \dfrac{-3 \pm \sqrt{(3)^2 - 4(6)(-6)}}{2(6)}$ $x = \dfrac{-3 \pm \sqrt{153}}{12}$ $\dfrac{-3 + \sqrt{153}}{12} \quad \dfrac{-3 - \sqrt{153}}{12}$ $x = \boxed{0.781} \quad x = \boxed{-1.281}$	$x = \dfrac{3 \pm \sqrt{(-3)^2 - 4(-2)(2)}}{2(-2)}$ $x = \dfrac{3 \pm \sqrt{25}}{-4}$ $\dfrac{3 + \sqrt{25}}{-4} \quad \dfrac{3 - \sqrt{25}}{-4}$ $x = \boxed{-2} \quad x = \boxed{\frac{1}{2}}$	$x = \dfrac{-2 \pm \sqrt{(2)^2 - 4(5)(1)}}{2(5)}$ $x = \dfrac{-2 \pm \sqrt{-16}}{10}$ no real solutions $x = \dfrac{-2 \pm 4i}{10} = \boxed{\dfrac{-1 \pm 2i}{5}}$