Name:_____   Date:_____

Class/Home worksheet: Alg2H
Discriminant and properties of solutions
(page 354 and beyond)

1. Determine the nature of the solutions:	2. Determine the nature of the solutions:
$x^2 + 10x + 25 = 0$	$x^2 + 7 = 0$
$\Delta = (10)^2 - 4 \cdot 1 \cdot 25 =$	$A = (0)^2 - 4 \cdot 1 \cdot 7 = -28$
$100 - 100 = 0$	$\boxed{\text{Two Complex Conjugate}}$
$\boxed{\text{One real}}$	

3. Determine the nature of the solutions:	4. Determine the nature of the solutions:
$x^2 - 4 = 0$	$y^2 = \dfrac{1}{2}y + \dfrac{3}{5}$
$\Delta = (0)^2 - 4 \cdot 1 \cdot (-4) = 16$	$y^2 - \dfrac{1}{2}y - \dfrac{3}{5} = 0 \quad / *10$
$\boxed{\text{Two real}}$	$10y^2 - 5y - 6 = 0$ $\boxed{\text{Two real}}$
	$\Delta = 25 - 4 \cdot 10 \cdot (-6) = 285$

5. Find a quadratic equation for which:	6. Find a quadratic equation for which:
Sum of solutions $= -5$	Sum of solutions $= -\pi$
Product of solution $= \dfrac{1}{2}$	Product of solution $= \dfrac{1}{4}$
Check your answer	Check your answer
$x^2 - (-5)x + \dfrac{1}{2} = 0 \quad /*2$	$x^2 - (-\pi)x + \dfrac{1}{4} = 0$
$2x^2 + 10x + 1 = 0$	$4x^2 + 4\pi x + 1 = 0$
$x_{1,2} = \dfrac{-10 \pm \sqrt{100 - 8}}{4}$	$x_{1,2} = \dfrac{-4\pi \pm \sqrt{16\pi^2 - 16}}{8}$
$= \dfrac{-10 \pm \sqrt{92}}{4} = \to -0.102 \checkmark$ $\to -4.897 \checkmark$	$\to -0.0817$ $\to -3.059$