NAME:_____

P.I. A2.A.2: Use the discriminant to determine the nature of the roots of a quadratic equation

1. Determine whether the following equation has two real solutions, one real solution, or two complex solutions. $5x^2 + 6x + 5 = 0$

2. Determine whether the following equation has two real solutions, one real solution, or two complex solutions. $7x^2 + 13x + 3 = 0$

3. Use the discriminant to find the type of solutions (two rational, two irrational, or one rational).
$-2x^2 + 4x + 2 = 0$

4. Use the discriminant to find the type of solutions (two rational, two irrational, or one rational).
$-4x^2 + 9x + 9 = 0$

5. Determine whether the following equation has two real solutions, one real solution, or two complex solutions. $7x^2 + 16x + 5 = 0$

   [A] two complex solutions

   [B] cannot be determined

   [C] one real solution

   [D] two real solutions

6. Determine whether the following equation has two real solutions, one real solution, or two complex solutions. $5x^2 + 2x + 2 = 0$

   [A] cannot be determined

   [B] two complex solutions

   [C] two real solutions

   [D] one real solution

7. What kind of solutions does $ax^2 - bx + c = 0$ have if $b^2 - 4ac < 0$?

   [A] one real solution

   [B] not enough information to tell

   [C] two real solutions

   [D] two complex solutions

NAME:_____

8. Compare the quantities in Column A and Column B.

Column A	Column B
the value of the discriminant of $x^2 + 3x - 5 = 0$	the value of the discriminant of $x^2 - 3x + 5 = 0$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The quantities are equal.

[D] The relationship cannot be determined from the information given.

9. Compare the quantities in Column A and Column B.

Column A	Column B
the number of solutions of $-3x^2 + 6x - 1 = 0$	the number of solutions of $3x^2 - 6x + 1 = 0$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The quantities are equal.

[D] The relationship cannot be determined from the information given.

10. Compare the quantities in Column A and Column B.

Column A	Column B
the number of x-intercepts of $y = 4x^2 - 6x + 5$	the number of x-intercepts of $y = -2x^2 - 8x - 8$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The quantities are equal.

[D] The relationship cannot be determined from the information given.

[1] two complex solutions

[2] two real solutions

[3] two irrational solutions

[4] two rational solutions

[5] D

[6] B

[7] D

[8] A

[9] C

[10] B