Week 3: Discriminant and Vieta’s theorem

Discriminant:

For question 1 to 3, find the discriminant and determine the number and the kind of roots of each equation.

For question 4 to 6, find the value of k so that the equation has the indicated number of solutions.

1. , two real solutions
2. , one real solution
3. , no real solution

Advanced

1. has real solutions. If c is an integer, then what is the greatest possible value of c?
2. If has equal roots, and , then
3. 45° B. 135° C. 45° or 135° D. 30°
4. Real numbers a and b satisfy the equation: . Then .

Vieta’s Theorem:

has two solutions and .

1. Find of this equation:
2. Find of this equation:
3. Find the and the of this equation:
4. Find of this equation:

Hint:

1. Find of this equation:

Hint:

Advanced

1. Let the two roots of be and . Set , , ……, . When , find the value of
2. Let the two roots of be and .Find the value of .
3. Let the two roots of be and . If and are prime numbers, then what is ?
4. If , and , , then what is ?
5. For natural number , let the two roots of be and , find the value of this equation: