

## Algebra 2: Homework 58

- Find the product of the roots of the quadratic equation  $2x^2 + 5x = 17$ .
- Write a quadratic equation that has a root of  $5 - 3i$ .
- If the equation  $x^2 - 6x + k = 0$  has 4 as one root, find the other root and find the value of  $k$ .
- Find the discriminant of the quadratic equation  $-3x^2 + 5x - 2 = 0$ .
- Solve for  $x$ :  $x^2 - 6x = -25$
- For each equation, state the number (1, 2, 3, or 4) which correctly describes the nature of the roots:
  - real, rational, and unequal
  - real, rational and equal
  - real, irrational, and unequal
  - imaginary
  - $x^2 + 9 = 2x^2 + x$
  - $x^2 - 4x = 4$
  - $x^2 + 3x = 5x - 10$
- For each equation, state the number (1, 2, 3, or 4) which correctly describes the graph:
  - It is tangent to the  $x$ -axis.
  - It intersects the  $x$ -axis at two points.
  - It lies entirely above the  $x$ -axis.
  - It lies entirely below the  $x$ -axis.
  - $y = -x^2 + 3x - 7$
  - $y = x^2 - 10x + 2$
  - $y = x^2 - 14x + 49$
- The roots of  $x^2 + 2x + k = 0$  are equal when  $k$  is
  - 1
  - 2
  - 3
  - 4
- Find the largest integral value of  $k$  for which the roots of  $2x^2 + 7x + k = 0$  are real.
- Solve for  $x$ :  $x - 8 = \frac{-20}{x}$
- If one root of the equation  $2x^2 + kx - 5 = 0$  is  $\frac{1}{2}$ , find the other root and find  $k$ .