History of Mathematical Ideas
Quiz 5

Name:_____

You have 15 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Define *algebraic number*. What word is used to describe numbers that are not algebraic?

A number is algebraic if it is a root of a nonzero polynomial with rational coefficients.
A number that is not algebraic is transcendental.

2. Give examples of the following types of numbers.
   (i) A number that is the area of a circle that **cannot** be squared with straightedge and compass.

   π

   (ii) A number that is the area of a circle that **can** be squared with straightedge and compass.

   1

   (iii) A number that is the volume of a cube that **cannot** be doubled with straightedge and compass.

   1

   (iv) A number that is the volume of a cube that **can** be doubled with straightedge and compass.

   2

   (v) A number that is the measure of an angle that **cannot** be trisected with straightedge and compass.

   $\pi/3$

   (vi) A number that is the measure of an angle that **can** be trisected with straightedge and compass.

   $\pi/2$