

History of Mathematical Ideas

Quiz 4

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. What is meant by a *constructible number*?

A *constructible number* is a real number (=point of the x -axis) that can be constructed by straightedge and compass.

2. Given a positive length x , describe how to construct \sqrt{x} using straightedge and compass.

Construct a circle with diameter of length $1 + x$. If the endpoints of the diameter are A and B , let C be the point of the diameter whose distance to A is 1 and whose distance to B is x . The line perpendicular to the diameter at C intersects the circle at points D and E , both of which are \sqrt{x} units from C . (So, CD has length \sqrt{x} .)