Name: _____

Reading Questions

1. Make sure you know the definition of a constructible number as well as the field theoretic characterization of constructible numbers (Theorem 21.41.)

2. Given lengths α and β, explain how to construct the length $\alpha\beta$. (See the proof of Theorem 21.35.)

3. For each of the following, state whether the number is constructible, and explain how you can tell:

   (a) $\frac{1}{2}$

   (b) $\sqrt{2}$

   (c) $\sqrt{2+\sqrt{7}}$

   (d) $\sqrt[3]{3}$

   (e) $\sqrt[4]{5}$

   (f) $\frac{\pi}{3}$

   (g) $\cos(\pi/3)$

   (h) $\sqrt{\cos(\pi/3)}$

4. What are the three impossible classical constructions described in this section? For each construction, state the corresponding real number that is shown to be not constructible.

5. What struck you in this reading? What is still unclear? What remaining questions do you have?