

QUIZ 2: CHAPTER 2 FEBRUARY 21

Name: _____

- All answers should be fully justified.
- Complete this quiz without any aids, including the text or your peers.

- (1) Consider the statement “if G is connected and every vertex in G is even, then G is Eulerian.”
(The domain for G is the set of all graphs.)

In each proof technique, write down what you assume to be true and what you then must show in order to prove the statement. *[You are not expected to know what the statement means, and therefore are not asked to complete a proof the statement.]*

- (a) **Direct proof**

Assume that ...

Our goal is ...

- (b) **Proof of the contrapositive**

Assume that ...

Our goal is ...

- (c) **Proof by contradiction**

Assume that ...

Our goal is ...

- (2) Prove that the sum of a rational number and an irrational number is always irrational.