Bio 111 Answer to iClicker Question 6A

- In (A), cystic fibrosis would be sex-linked recessive.
- In (B), cystic fibrosis would be autosomal recessive. THIS IS THE CORRECT ANSWER.
- In (C), cystic fibrosis would be sex-linked dominant.
- In (D), cystic fibrosis would be autosomal dominant.

Bio 111 Answer to iClicker Question 6B

The best way to proceed is to rule out alternatives & then check to see if what is left makes sense.

⇒ it cannot be autosomal dominant, since the parents of affected children are unaffected(if AD, affected children must have at least one affected parent).

⇒ it cannot be sex-linked recessive, since affected daughters have an unaffected father (if SLR, affected daughters must have an affected father).

⇒ all that is left is autosomal recessive.

allele	contribution to phenotype
D	normal (dominant)
d	diseased (recessive)

Take it for a 'test-drive'. Starting from what you know for sure, the 2 daughters must be dd (that is the only genotype which is affected). Therefore the parents must each have one d - they must be ?d. Since the parents are unaffected, they must also be D_. Putting these together, the parents must be Dd and Dd. Although there is only a 1/16 chance of them having 2 affected daughters, it is still possible. Therefore, A is the correct answer.