Help session practice problem

You cross a series of fruit flies that are homozygous for six different mutations, each of which cause a recessive mini-fly phenotype. You score the phenotype of the resulting F1 progeny as follows.

	a/a	b/b	c/c	d/d	e/e	f/f
a/a	X	mini	normal	normal	normal	mini
b/b	mini	X	normal	normal	normal	mini
c/c	normal	normal	X	normal	mini	normal
d/d	normal	normal	normal	X	normal	normal
e/e	normal	normal	mini	normal	X	normal
f/f	mini	mini	normal	normal	normal	X

i) Place the six mutations into complementation groups.

ii) Are mutations b and c in the same gene or in different genes? _____

iii) You cross a homozygous "g/g" mutant animal to a/a and b/b animals. Both crosses yield mini-flies. What is your conclusion?

iv) Another student in the lab tells you that she has found that g and d are two different alleles of the same gene. What is something about mutation g that would explain this discrepancy?

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