**Answer key**

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1.**d) You can conclude that both $A_1$ and $B_1$ are identical by descent.**
2. **No, there is a deficit of homozygotes.**
3. **0.25 for each genotype.**
4. **No**.
5.

| | |
|---|---|
| ($A_{1,1}$ $B_{1,1}$ | **1/16** |
| $A_{1,1}$ $B_{1,2}$ | **2/16** |
| $A_{1,1}$ $B_{2,2}$ | **1/16** |
| $A_{1,2}$ $B_{1,1}$ | **2/16** |
| $A_{1,2}$ $B_{1,2}$ | **4/16** |
| $A_{1,2}$ $B_{2,2}$ | **2/16** |
| $A_{2,2}$ $B_{1,1}$ | **1/16** |
| $A_{2,2}$ $B_{1,2}$ | **2/16** |
| $A_{2,2}$ $B_{2,2}$ | **1/16** |

6. **Yes.**
7. **Yes, locus A is at Hardy-Weinberg equilibrium.**
8. **3/8 $A_1B_1$, 1/8 $A_1B_2$, 1/8 $A_2B_1$, 3/8 $A_2B_2$**
9. **Yes.**
10. **a) $A_1B_1C_1/A_3B_3C_3$**
11. The order should be **ABC.**
12. **Z = 1.8**
13. **Z = 1.515**
14. **$\theta$ = 1/6**
15. **Z = 0.632**
16. **$\theta$ = 1/3**
17. **Z = 0.148**