Answers

Part I: One Trait Crosses
1. 1/2
2. A. None  B. 1/2
3. None
4. 30
5. C
6. O
7. 8
8. A. gametes: T and t; tall
   B. gametes: 1/2T & 1/2t for one parent, and all t for the other parent; 1/2 tall and 1/2 short
   C. gametes: all T for one parent and 1/2T & 1/2t for the other parent; All Tall
   D. gametes: 1/2 T & 1/2 t for each parent; 3/4 tall and 1/4 short
9. A. genotype: 100% Dd; phenotype: 100% yellow
   B. genotype: 1/4 DD, 1/2 Dd, 1/4 dd; phenotype: 3/4 yellow and 1/4 green

Part II: Back Crosses
1. Mother: aa; Father: Aa; Normal child: Aa; CF child: aa
2. A. Parents: Aa; Grandfathers: A?; Grandmothers: aa; Sally and Susie: aa
   B. 1/2
3. Mother: T? Father: tt Mark and Max: Tt
4. No
5. BB
6. A
7. Black guinea pig is homozygous
8. Heterozygous
9. Parent with freckles: Aa; Parent without freckles: aa; Children with freckles: Aa; Child with no freckles: aa
10. Man: aa; Woman: AA; Children Aa
11. Parents: Tt and tt
12. Parents of man: Bb; Man: bb; Woman: Bb; Child: bb
13. 1/2

Part IV- Test Cross
1. All of the offspring will be black.
2. Do a test cross; Mate the pig with a white guinea pig; If any white guinea pigs result, then the black guinea pig is heterozygous, and not pure. If all the offspring are black, AND if there are sufficient numbers, then the black guinea pig is most likely pure.
3. Rr- heterozygous

Part VI-Two Traits
1. BbTt x bbtt --> 25% for each: BbTt, Bbtt, bbTt, bbtt
3. rrTT x RRtt A. all tomatoes will be red and tall B. Yes
4. 12
5. 1/4 AaBb spotted and wooly; 1/4 Aabb spotted and nonwooly; 1/4 aaBb nonspotted and wooly; 1/4 aabb nonspotted and nonwooly.
6. Parents are DDee and ddEE; and children are DdEe