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## Genetics Practice Problem

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1. If a woman who is homozygous dominant (WW) for widow's peak (a dominant trait) has a child with a man who is homozygous recessive (ww), will their child have a widow's peak?
2. If two people with attached earlobes have a baby, is there any way that their baby could have detached earlobes? (Detached earlobes are dominant over attached).
3. Could two people with red hair have a baby with blonde hair? (Red hair is recessive).
4. Is it possible for two people with freckles to have a baby without freckles? (Freckles are dominant).
5. Draw the following pedigree and label the alleles: One of Ina's adult teeth grew in through the roof of her mouth. Her husband Stan has normal teeth. Their two children Rick and Gwen had normal teeth, but Ina and Stan's other child, Joanne, had a tooth growing through the roof of the mouth. Gwen married Don, and their daughter Brittany also has this trait. Joanne married Klaus, and their children Michael and Erik have normal teeth. Rick married Brenda; their daughter Candace has this trait, but son Curtis doesn't.
6. If a man who is heterozygous for a crooked little finger (Cc) and a woman who is homozygous for a straight little fingers (cc) have children, what would be the predicted genotypic ratio for their kids?
7. Draw the following pedigree and label the alleles: Margaret and John both have wavy hair. Their daughter Lila has curly hair and their sons Walter and Jim both have wavy hair. Earl has straight hair and his wife, Heidi, has wavy hair. Their son Basil and daughters Florence and Darcy all have straight hair, but their other son Frank has wavy hair. Frank and Lila married, and their sons, Brian and Gary, both have curly hair. What pattern of inheritance does curly hair follow? (Hint: heterozygotes have a phenotype that is halfway between curly and straight hair).
8. Is there any way that a woman with straight thumbs could have a baby with hitchhiker's thumbs? (Straight thumbs are dominant over hitchhiker's).
9. Draw the following pedigree: Oliver is missing his incisor teeth. His wife Ruth has her incisors. Both their son Lee and their daughter Grace are missing their incisors. Both Lee and Grace married partners with normal teeth. Grace's sons Sky and Zack and daughter Ruth have incisors. Lee's sons Ian and Donald have all of their teeth, but daughter Fiona and son Brady are missing their incisors. After drawing the pedigree, does this trait follow simple dominance or some other type of dominance?