

**Question 1**

Mary-half-sister-of-Ann  $\leftarrow$  Mary-mother-Sue  $\wedge$  Mary-father-Ed  
 $\wedge$  Ann-mother-Sue  $\wedge$  Ann-father-Sam  
 $\wedge$  Mary-is-female

**Question 2**

$\forall x, y, z, a, b$  halfSisterOf( $x, y$ )  $\Leftarrow$  parentOf( $z, x$ )  $\wedge$  parentOf( $z, y$ )  
 $\wedge$  parentOf( $a, x$ )  $\wedge$  parentOf( $b, z$ )  
 $\wedge$  not(= $a, b$ )  $\wedge$  not(= $b, z$ )  $\wedge$  not(= $a, z$ )  
 $\wedge$  female( $x$ )