

1.

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5. Let the statements be numbered as follows:

(1) Mitchell: Jesse wiped the white board clean.

(2) Jesse: I did not do it.

(3) Tiffany: I did not do it either.

Case 1: IF Mitchell is telling the truth: THEN (1) "Jesse wiped the board clean" is true, (2) "I did not do it" is false, (3) "I did not do it either" is true. XXX we have two people telling the truth, so Mitchell cannot be telling the truth.

Case 2: IF Jesse is telling the truth: THEN (2) "I did not do it" is true, so Mitchell or Tiffany did it, (1) "Jesse wiped the board clean" is a lie, because Mitchell or Tiffany did it, (3) "I did not do it either." If she is lying, then she did it.

Case 3: IF Tiffany is telling the truth: THEN (3) "I did not do it either" is the truth, so Mitchell or Jesse did it, (1) "Jesse wiped the board clean" must be a lie, so then Mitchell did it. (2) "I did not do it" is true. XXX does not work because we have two people telling the truth.

The only case that works is the second, so is the one who wiped the board clean.

6. Free point.

7. The problem does not work as it is written. The only solution we can get is that Avantika plays Piano and lives in Irvine; otherwise, it has no solution. Try the problem again with the edited version below, and see if you can get the intended answer.

Joyce, Avantika, and Rosenne are classmates. They live in three different cities: Ladera Ranch, Laguna Hills, and Irvine. They play three different music instruments: piano, violin, and cello. Suppose

(a) Joyce does not play piano and Avantika does not play violin.

(b) The student who plays piano does not live in Laguna Hills.

(c) The student who plays cello lives in Ladera Ranch.

(d) Rosenne does not live in Ladera Ranch.

Find out what music instrument they play and which city they live.

Then Joyce plays cello and lives in Ladera Ranch, Rosenne plays violin and lives in Laguna Hills, and Avantika plays piano and lives in Irvine.

8.