

Name: _____ Date: _____

CS 160, Spring 2014
Homework 2
Math Proofs

Please turn in a paper copy of this assignment at the beginning of your recitation on Monday, March 31st or Tuesday, April 1st, no electronic submissions for this assignment, please!

Answer all four questions.

1. (25 points) **Direct Proof:** Use a direct proof to show that $2x + 3y$ is odd when x is an even integer and y is an odd integer. **Note:** Use as many steps as necessary.

Step

Reason

1.

2.

3.

4.

5.

6.

2. (25 points) **Contrapositive Proof:** Use a contrapositive proof to show that if x and y are integers, and $3xy$ is even, then x is even or y is even. **Note:** Use as many steps as necessary.

Step

Reason

1.

2.

3.

4.

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6.

3. (25 points) **Contradiction Proof:** Use a contradiction proof to show that if x and y are integers, and $3xy$ is even, then x is even or y is even. **Note:** Use as many steps as necessary.

Step

Reason

1.

2.

3.

4.

5.

6.