Problem Set 1   **Foundations**   **Due 1/22/16**

Four of these problems will be graded (our choice, not yours!), with each problem worth 5 points. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but must write up your own final submission without reference to any sources other than the textbook and instructor.

1. The sum of an odd and an odd integer is even.

2. The product of an even and an odd integer is even.

3. If $m, n \in \mathbb{Z}$ and $m \cdot n$ is even, then m is even.

4. The sum of a throddodd and a throddodd integer is throdd.

5. The product of a throdd and a throdd integer is throdd.

6. The cube of a throddodd is throddodd.

7. If p, q and r are integers for which p divides q and p divides $q + r$, then p divides r.

8. If p, q and r are integers for which p divides qr, then p divides q or p divides r.