

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 product of an even and an odd integer is even.
2. The product of a throdd and a throddodd integer is throddodd.
3. The sum of two throddodd integers is throdd.
4. The sum of any three consecutive integers is threven.
5. The product of an even and a throdd integer is throddodd.
6. The sum of an odd and a throddodd integer is threven.
7. 2 divides any even integer.
8. If  $p$  divides  $m$  and  $q$  divides  $n$ , then  $pq$  divides  $mn$ .