

1. Show that the product of two throddodd integers is throdd.

2. If  $a$ ,  $b$ , and  $c$  are integers for which  $a \mid b$  and  $a \mid (b + c)$ , then  $a \mid c$ .

3. Determine whether  $(P \wedge Q) \vee R$  is logically equivalent to  $(P \vee R) \wedge (Q \vee R)$

4. Show that if  $a \equiv_n -1$ , then  $a^2 \equiv_n 1$ .

5. For all  $n \in \mathbb{N}$ ,  $2^n \geq 1$ .

