1. Use proof by induction to show $6^n + 4$ is divisible by 5 for all $n \geq 1$.

2. Do some computation to first conjecture the value for the blank, then use induction to prove your conjecture. $8^n - 3^n$ is divisible by _____ for all $n \geq 1$

1. Use proof by induction to show $2^{2n} - 1$ is divisible by 3 for all $n \geq 1$.

2. Do some computation to first conjecture the value for the blank, then use induction to prove your conjecture. $9^n - 2^n$ is divisible by _____ for all $n \geq 1$

1. Use proof by induction to show $9^n + 3$ is divisible by 4 for all $n \geq 1$

2. Do some computation to first conjecture the value for the blank, then use induction to prove your conjecture. $5^n + 2 \cdot 11^n$ is divisible by _____ for all $n \geq 1$