a)
Use algebra to prove that an odd number multiplied by a different odd number always gives an answer that is an odd number.

What is the general form for an odd number?	$2n - 1$
What is the general form for a different odd number?	$2m - 1$
What is the product of the general forms of two different odd numbers?	$(2n - 1) \times (2m - 1)$ $2n$ -1 $2m$ | $4mn$ | $-2m$ | -1 | $-2n$ | $+1$ | $4mn - 2m - 2n + 1$
How do we know that this is an odd number?	$4mn - 2m - 2n + 1$ $4mn$ is even $2m$ is even $2n$ is even even – even – even + 1 = odd

b)
Use algebra to prove that any odd number multiplied by any even number always gives an answer that is an even number.

What is the general form for an odd number?	$2n - 1$
What is the general form for an even number?	$2m$
What is the product of the general forms of any odd number and any even number?	$(2n - 1) \times (2m)$ $2n$ -1 $2m$ | $4mn$ | $-2m$ | $4mn - 2m$
How do we know that this is an even number?	

c)
Use algebra to prove that the sum of an odd number and a different odd number always gives an answer that is an even number.

What is the general form for an odd number?	$2n - 1$
What is the general form for a different odd number?	$2m - 1$
What is the general form for the sum of two different odd numbers?	
How do we know that this is an even number?	

d)
Use algebra to prove that the sum of any odd number and any even number always gives an answer that is an odd number.