BUILDING BLOCKS FOR PROOF

Prove that $(2n+3)^2-(2n-3)^2$ is always a multiple of 4 when n is an integer	Prove that the difference between the squares of two consecutive integers is equal to their sum	Prove algebraically that the sum of the squares of two consecutive positive odd integers is always even.	
Fran says that if you square an odd number then add 4 you always get a prime number. Give an example to show that Fran is incorrect.	Show that, for a positive integer value of n, $5(n-2)-2(n+1)$ will always be a multiple of 3	Show that, for positive integer values of y, $3(2y-3)+5(2y+1)$ is an even number	Prove that the sum of three consecutive positive integers is a multiple of 3
Expand and simplify $3(y-2)-2(y-1)$	Write three consecutive numbers using algebra	Write an odd number using algebra	
List all the prime numbers between 20 and 40	Simplify $5x+4-7-x$	Expand $5(2a-3)$	Factorise $6n-14$

BUILDING BLOCKS FOR PROOF

ANSWERS

$(4n^2 + 12n + 9) - (4n^2 - 12n + 9)$ simplifies to $24n = 4(6n)$

Sum:
$n + n + 1 = 2n + 1$
Difference of squares:
$(n + 1)^2 - n^2$
$n^2 + 2n + 1 - n^2$
$2n + 1$

$(2n + 1)^2 + (2n + 3)^2$
$4n^2 + 4n + 1 + 4n^2 + 12n + 9$
Simplify:
$2(4n^2 + 8n + 5)$

Fran says that if you square an odd number

$9^2 + 4 = 85$

example to show that Fran is incorrect.

Show that, for a

Simplifies to $3(n - 4)$

multiple of 3

Simplifies to $2(8y + 2)$

$n + n + 1 + n +$ 2 simplifies to $3(n + 1)$

Exp lify $3(y$ $- 1)$

$y - 4$

$n, n + 1, n + 2$

Wr ber

$2n + 1$

List all the prime

$23, 29, 31, 37$

and 40

5

$4x - 3$ x

$10a - 15$

$2(3n - 7)$