



A line passes through A(1, 4) and B(5, 16)

Find the equation of the line perpendicular to AB that passes through the midpoint of AB.

Alzahraa has 10 black socks, 8 white socks and 2 blue socks.
She picks two socks at random, without replacement.

Calculate the probability she chooses two socks of the same colour.

Prove algebraically that
 $(4n + 1)^2 - (2n - 1)$ is an even number
for all positive integer values of n .

The n^{th} term of a quadratic sequence is $n^2 + 4n$

Two consecutive terms have a difference of 25.

Work out the two terms.

$$\frac{81^y}{3^{y-5}} = 3\sqrt{3}$$

Find y