Edexcel GCSE maths November 2013, Non-Calculator paper

21 y is directly proportional to the square of x.

When $x = 3$, $y = 36$

Find the value of y when $x = 5$

The statement that y is directly proportional to the square of x is equivalent to the equation $y = kx^2$.

Substituting the values given for x and y in the equation we have $36 = k \times 3^2$.

So $9k = 36$ and $k = \frac{36}{9} = 4$.

The equation connecting x and y is therefore $y = 4x^2$ and the value of y when $x = 5$ is given by

$y = 4 \times 5^2$

$= 4 \times 25$

$= 100$