

Risp 36: First Steps into Differentiation

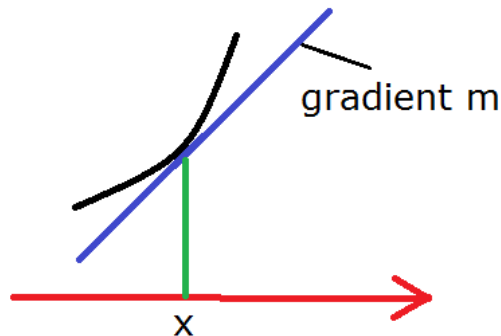
Open your graphing package and draw the curve $y = x^2$.

Now draw $y = mx + c$.

Initially Autograph will give both m and c the value 1, and will draw $y = x + 1$.

Pick and enter a value for m , using the Constant Controller.

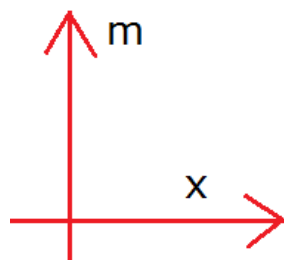
Now adjust c using the constant controller until $y = mx + c$ touches the curve.



Make a table like the one below, and record your values for m and x .

m				
x				

Repeat this five more times, then plot m against x using the values in your table.



We call this 'the graph of the gradient function of x^2 '.

What is the equation of this graph?

Now repeat the above, starting with $y = x^3$.

What do you get when you plot m against x this time?

What is the gradient function of x^3 .

Suppose we start with $y = x^1$? What happens here?

Suppose we start with $y = x^0$? What happens here?

Put your results into the table below.

Can you predict how the table will continue?

Power of x	Gradient function